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MOBILE LASER DOPPLER SYSTEM CHECKOUT AND CALIBRATION. VOLUME II--ETC(U)
JUN 77 M R BRASHEARS, T R LAWRENCE, A D ZALAY DOT-TSC-1098-2

UNCLASSIFIED LMSC-HREC-TR-D497036-2 FAA-RD-77-48.2 NL

1 OF 4
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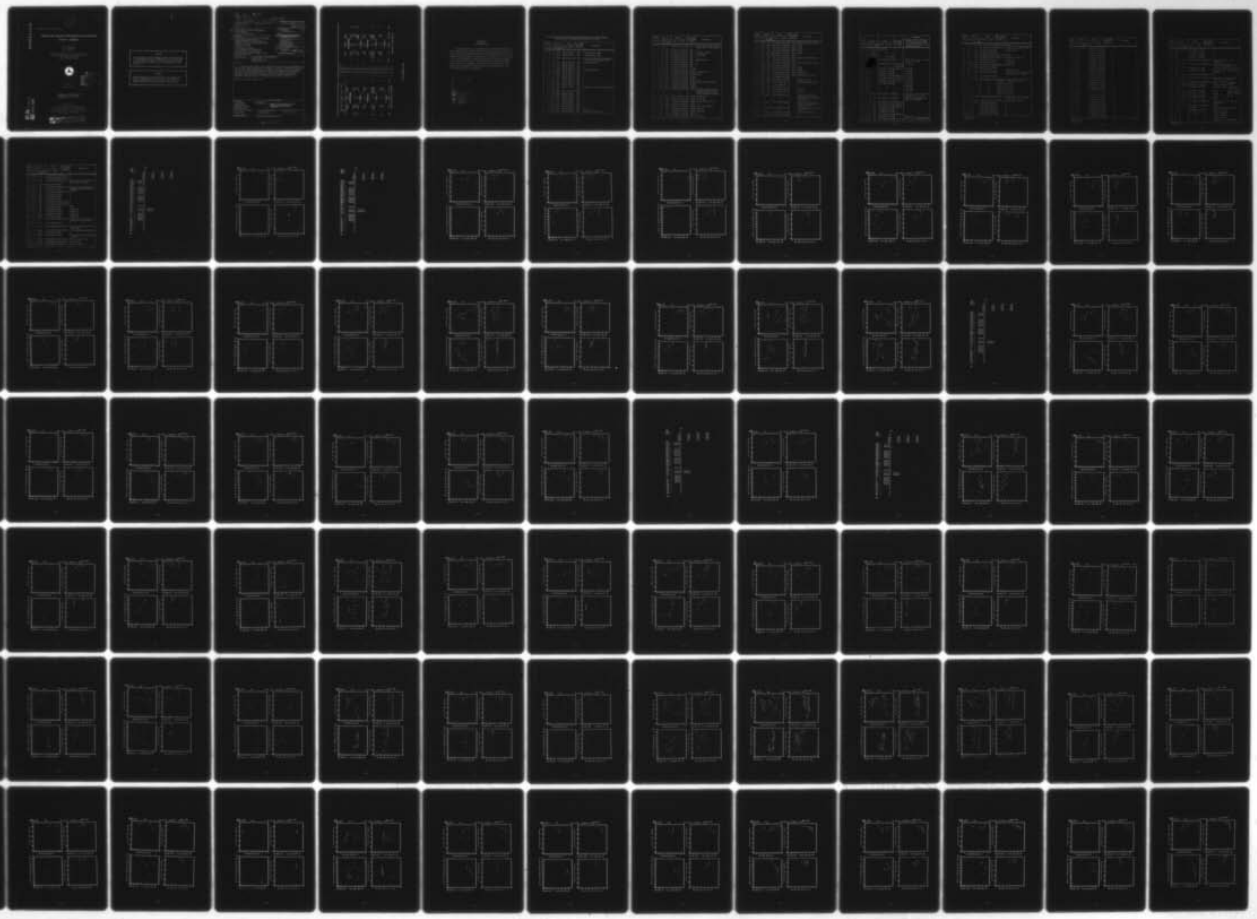

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MOBILE LASER DOPPLER SYSTEM CHECKOUT AND CALIBRATION

Volume II: Appendixes

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FINAL REPORT

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Prepared for

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
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Washington DC 20591

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16. Abstract

A program has been carried out to make modifications to the Lockheed-Huntsville Mobile Laser Doppler Velocimeter (LDV) system; to calibrate and operate the system at the John F. Kennedy (JFK) Airport; to obtain a data base of wind, wind shear, and wake vortex measurements; and to assess the basic operational capabilities of the system based on these measurements. The basic operational capabilities, resolution, and integrity of a scanning LDV for the remote sensing of winds, wind shear, and wake vortices at terminal areas have been established.

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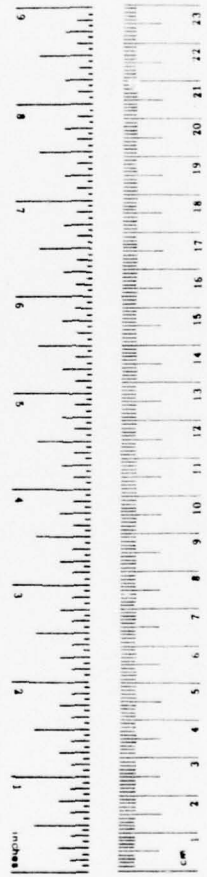
METRIC CONVERSION FACTORS

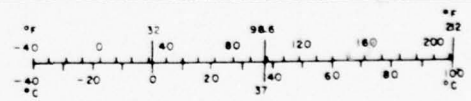
Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
	AREA			
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
	MASS (weight)			
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
	VOLUME			
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
	TEMPERATURE (exact)			
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
	AREA			
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
	MASS (weight)			
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
	VOLUME			
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
	TEMPERATURE (exact)			
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



Appendix A
DATA REPORT

This appendix summarizes the wake vortex and wind measurements made with the Lockheed-Huntsville LDV during the research program. The logs for the LDV measurements showing the run identification, time of day, estimated wind, and operator comments are presented on pages A-2 through A-11. The cataloged wake vortex measurements are presented on pages A-12 through A-253 in terms of the trajectory of the wake vortex with respect to the runway centerline. At the start of each new tape, the input parameters selected for the VAD and Vortex Track program are given for the wake trajectory calculations.

DATA LOG OF WAKE VORTEX AND WIND VELOCITY MEASUREMENTS
CONDUCTED BY LOCKHEED-HUNTSVILLE AT JFK

Tape ID	Run ID		Time		Est. Wind Azimuth (from)	Comments
JFK	No.	AC Type or VAD	Start	Stop		
1	1	VAD	10:51	10:57	NW	120° total inc. angle
1	2	VAD	10:03	11:06	NW	60° total inc. angle
2	1	VAD	03:50	03:54	NW	Very clear day; VAD scan heights 50, 60, 70, 80, 100, 200, 250
2	2	747	03:56	03:57	NW	Changed at three
2	3	707	03:58	04:00	NW	
2	4	727	04:01	04:02	NW	
2	5	DC10	04:08	04:09	NW	20 dB input atten.
2	6	DC9	04:12	04:13	NW	
2	7	707	04:16	04:17	NW	
2	8	727	04:18	04:19	NW	
2	9	707	04:20	04:21	NW	
2	10	707	04:23	04:24	NW	
2	11	DC10	04:24	04:25	NW	
2	12	747	04:34	04:35	NW	Wind at or near run end; Teflon off
2	13	VAD			NW	
2	14	DC8	04:37	04:38	NW	
2	15	DC10	04:39	04:39	NW	
2	16	DC9	04:41	04:42	NW	
2	17	747	04:43	04:44	NW	
2	18	747	04:45	04:46	NW	
2	19	DC8	04:47	04:47	NW	
2	20	707	04:49	04:50	NW	
2	21	VAD	04:55	05:00	NW	See run 1
2	22	VAD	05:00	05:03	NW	Parity in 21st record

Tape ID	Run ID		Time		Est. Wind Azimuth (from)	Comments
JFK	No.	AC Type of VAD	Start	Stop		
3	1	VAD	15:00:25	15:05:40	NW	40, 45, 60, 75, 100, 150, 200, 300 m at 1 rev. per altitude
3	2	747	15:09:35	15:10:35	NW	
3	3	707	15:11:50	15:12:15	NW	12 knots at 340°
3	4	747	15:13:40	15:14:45	NW	Looks good
3	5	747	15:24:00	15:24:55	NW	
3	6	747	15:28:00	15:24:55	NW	360° at knots
3	7	737	15:35:00	15:35:45	NW	
3	8	747	15:37:05	15:38:05	NW	
3	9	747	15:40:30	15:41:35	NW	
3	10	727	15:44:40	15:45:30	N-NE	
3	11	707	15:46:00	15:47:00	N-NE	< 5 knots ≈ N.
3	12	707	15:48:55	15:49:40	N-NE	Calm
3	13	707	15:51:00	15:51:40	N-NE	
3	14	747	15:52:15	15:53:10	N-NE	
3	15	747	15:55:15	15:56:30	N-NE	Good! Low! Calm winds
3	16	747	15:58:30	15:59:30	N-NE	
3	17	DC-9	16:01:00	16:14:00	N-NE	
3	18	VAD	16:04:45	16:09:00	N-NE	See Run 1 notes for steps observed wind at ≈ 3 mph horiz. comp. 707 passed ≈ 16:04:07 about record 57
3	19	DC-9	16:11:30	16:12:10	N-NE	About Run 19
3	20	707	16:14:30	16:16:15	N-NE	Good run!
3	21	707	16:17:45	16:18:40	N-NE	Freq. going about F.S.
3	22	DC-8	16:19:35	16:20:45	N-NE	
3	23	707	16:23:30	16:25:00	N-NE	360° at 8. Good one
3	24	727	16:26:00	16:27:15	N-NE	Good one
3	25	727	16:28:00	16:29:00	N-NE	Good one
3	26	707	16:30:00	16:31:10	Calm	
3	27	DC-10	16:33:00	16:34:20	Calm	Good one

Tape ID	Run ID		Time		Est. Wind Azimuth (from)	Comments
JFK	No.	AC Type of VAD	Start	Stop		
3	28	727	16:35:00	16:36:00	Calm	Good one, came in high
3	29	DC-10	16:37:00	16:38:30	Calm	Good
3	30	707	16:40:00	16:41:10	Calm	Good
3	31	747	16:44:00	16:45:00	Calm	Good
3	32	DC-10	16:46:30	16:47:30	Calm	Good
3	33	DC-10	16:49:00	16:50:10	Calm	
3	34	747	16:51:30	16:53:30	Calm	Calm. Good! Real Good
3	35	747	16:54:00	16:55:00	Calm	
3	36	VAD	17:57:00	17:00:00	Calm	See run 1 notes for steps
3	37	L-10-11	17:02:00	17:03:30	Calm	
3	38	L-10-11	17:05:00	17:07:00	Calm	Calm
3	39	707	17:11:15	17:12:10	Calm	Calm
3	40	727	17:13:15	17:14:00	Calm	Abort run
3	41	747	17:15:00	17:16:30	Calm	Exceeded max. freq.
3	42	707	17:18:00	17:19:00		
3	43	DC-8	17:25:00	17:26:20		0080 at 5 knots
3	44	747	17:27:00	17:29:00		Real good; hanging high
3	45	727	Missed TM			
3	46	707	17:32:00	17:33:30		
3	47	727	17:35:00	17:35:30		007 at 5
3	48	707	17:37:00	17:38:15		007 at 5
4	1	Wheel	10:04:00	10:09:00		222 m for 1st 30 or 31 records; 322 m for rest. Wheel range (ft) to side of van (542)
4	2	Wheel	10:33:00	10:38:00		Wheel at 328° to side of van. A/C turned on off at record 29 and on
4	3	Wheel	11:15:00	11:20:00		230° distance from wheel to van side
4	4	Abort	11:52:00	11:53:00		30 kHz BW to RE 35
4	5	Wheel	11:55:00	12:00:00		

Tape ID	Run ID		Time		Est. Wind Azimuth (from)	Comments (1) Scanner running clockwise looking down on van (JFK ID 5); (2) Conditions clear; gusty winds toward van from W/SW (JFK ID 6)
JFK	No.	AC Type of VAD	Start	Stop		
4	6	Calib 1	12:02:00			
4	7	Calib 2				
4	8	Calib 3				
4	9	Calib 4		12:03:00		
5	1	VAD	14:10:00	14:15:00	SE	35, 45, 60, 75, 100 150, 200, 400 m at 1 rev/alt
5			14:15:00	14:25:00	230 at 10	2 rev/alt
5					Using 226	
5	4		14:25:00	14:40:00	230 at 6	4 rev/alt
5	5		14:41:00	14:46:00		4 rev/alt
5	6		14:46:00	14:56:00		2 rev/alt
5	7		14:56:00	15:11:00	200° at 5	1 rev/alt
5	8		15:12:00	15:17:00	220° at 5	1 rev/alt
5	8		15:17:00	15:27:00	220 at 3	2 rev/alt
5	9		15:27:00	15:42:00		4 rev/alt
5	10					4 rev/alt
5	11					2 rev/alt
5	12					1 rev/alt
6	1	VAD	15:12:00	15:17:00	SW	Alt: 35, 45, 60, 75, 100, 150, 200, 400 m at 1 rev/alt
6	2	747	15:34:00	15:35:00	SW	(280° at 18) azimuth 200°; data bad, need 280°
6	3	707	15:40:00	15:41:00	290° at 16	
6	4	707	15:43:00	15:44:00	290° at 16	
6	5	727	15:46:00	15:47:00	290° at 14	
6	6	707	15:48:00	15:49:00		
6	7	DC-9	15:50:00	15:51:00		
6	8	747	15:52:00	15:53:00	290 at 16	
6	9	747	15:54:00	15:55:00		Good run) Vortices blowing
6	10	707	15:55:00	15:56:00	290 at 15	Good run) in toward van

Tape ID JFK	Run ID		Time		Est. Wind Azimuth (from)	Comments
	No.	AC Type of VAD	Start	Stop		
6	11	707	15:57:00	15:57:00	280 at 16	Good run } Vortices blowing
6	12	727	15:58:00	15:59:00	280 at 14	Good run } in toward van
6	13	707	16:01:00	16:02:00		Good run }
6	14	707	16:03:00	16:04:00		
6	15	DC-9	16:06:00	16:07:00	280 at 16	Good !
6	16	707	16:08:00	16:09:00	280 at 14	Low ! most hits $< 15^{o}$
6	17	747	16:10:00	16:11:00		Good run !
6	18	707	16:12:00	16:13:00		Good run !
6	19	DC-10	16:15:00	16:16:00	280 at 14	Good run !
6	20	DC-9	16:17:00	16:18:00		
6	21	707	16:20:00	16:21:00		Blew over fast
6	22	VAD	16:25:00	16:30:00		Alt: 35, 45, 60, 75, 100, 150, 200 400 m at 1 rev/alt.
6	23	707	15:42:00	15:43:00		
7	1	VAD	14:00:00	14:37:00	320 at 18 at 1400	35, 41 50, 60, 70, 100, 200, 300 m at 1 rev/alt.
7					340 at 18	at 1409
7					320 at 20	at 1412
7					330 at 12	at 1424
7					330 at 20	at 1428
7					330 at 17	at 1432
8	1	VAD	10:01:00	10:07:00	180° at 4	Alt: 35, 41, 50, 60, 70, 100, 200 300, m at 1 rev/alt.
8	2	VAD	10:15:00	10:20:00	180° at 7	Same alt. as above
8	3	RS*	10:53:00	10:53:21		
8	4		10:55:00	10:55:21		
8	5		10:55:55	10:56:15		
8	6		10:57:40	10:58:00		
8	7		10:59:00	10:59:20		

*Range Scan

Tape ID	Run ID		Time		Est. Wind Azimuth (from)	Comments
JFK	No.	AC Type of VAD	Start	Stop		
8	8	RS*	11:01:00	11:01:20		
8	9		11:02:00	11:02:20		
8	10		11:03:00	11:03:20		
8	11		11:04:00	11:04:20		
8	12		11:05:00	11:05:20		
8	13		11:06:00	11:06:20		
8	14		11:07:00	11:07:20		
8	15		11:08:00	11:08:20		
8	16		11:09:00	11:09:20		
8	17		11:10:00	11:10:20		
8	18		11:11:00	11:11:20		
8	19		11:12:00	11:12:20		
8	20		11:14:00	11:14:20		
8	21		11:15:00	11:15:20		
8	22		11:16:00	11:16:20		
8	23		11:17:00	11:17:20		
8	24		11:18:00	11:18:20		
8	25		11:19:00	11:19:20		
8	26					
8	27		11:20:00	11:20:20		
8	28		11:21:00	11:21:20		
8	29		11:22:00	11:22:20		
8	30		11:23:00	11:23:20		
8	31		11:24:00	11:24:20		
8	32		11:25:00	11:25:20		
8	33		11:26:00	11:26:20		
8	34		11:27:00	11:27:20		
8	35		11:28:00	11:28:20		
8	36		11:29:00	11:29:20		

*Range Scan

Tape ID	Run ID		Time		Est. Wind Azimuth (from)	Comments
JFK	No.	AC Type of VAD	Start	Stop		
8	37	RC*	11:30:00	11:30:20		
8	38		11:31:00	11:31:20		
8	39		11:42:00	11:45:00		
8	40		11:45:30	11:48:30		
8	41	VAD	11:51:00	11:52:30	200° at 7	Halt after 1½ min, winds > full scale
8	42	VAD	11:55:00	12:00:00	200° at 7	Shear running about 1.2 m cycles; gw about 400 kHz
8	43	RC*	12:08:30	12:17:00		Azimuth, 310°; left of Tower 2
8	44		12:44:00	12:47:00		Azimuth, 240°; to right and top, Tower 1
8	45	VAD	12:56:00	13:01:00	200° at 7	
9	1	VAD	16:29:30	16:31:30	230 at 11	Alt: 35, 41, 50, 60, 70, 100, 200, 300 m at 1 rev/alt
9	2	DC-9	16:41:00	16:42:00	230 at 11	Gone in a hurry } Azimuth =
9	3	DC-10	16:44:00	16:45:00		Gone in a hurry } 280°
9	4	707	16:47:00	16:49:00		Azimuth = 100° Notice azimuth change
9	5	747	16:50:00	16:51:00		Good } Good displays, but very short lived.
9	6	DC-10	16:52:00	16:53:00		Good
9	7	707	16:54:00	16:55:00		Good
9	8	DC-10	16:55:00	16:56:00		Good
11	1	VAD	11:43:00	11:55:00	220°	Alt: 41, 50, 60, 70, 100, 200, 300 (SR 1)
11	2	VAD	12:46:00	12:55:00	200	Ditto
11	3		13:15:00			Ditto plane crash at ≈ 1310
11	4		13:59:00	14:45:00		300 m – 1.4 MH2
11	5		14:52:45			350 – 600 MH2
11						70 – 600 MH2
11						100, two peaks
11						2010 up to 1.8 MHz at 200°

*Range Scan

Tape ID	Run ID		Time		Est. Wind Azimuth (from)	Comments
JFK	No.	AC type of VAD	Start	Stop		
13	1	VAD	14:50:00	14:52:00	220°	Alt: 35, 41, 50, 60, 70, 100, 200, 300 m
13	2	VAD	14:55:00	15:60:00	220°	
13	3	VAD	15:20:00	15:25:00	220°	
13	4	VAD	15:48:00	15:54:00	220°	
13	5	VAD	16:19:00	16:24:00	220°	
13	6	VAD	16:49:00	16:55:00	220	
13	7	VAD	10:41:00	10:52:00	330°	Alt: 35, 41, 50, 60, 70, 100, 200, 300
13	8	707	11:27:00	11:28:00		
13	9	DC-9	11:34:00	11:36:00		
13	10	A 300	11:46:00	11:48:00		Airbus (France)
13	11	VAD	11:52:00	11:55:00		
13	12	DC-8	11:58:00	11:10:00		Alt: 35, 41, 50, 60, 70, 100, 200, 300
13	13	707	12:02:00	12:04:00		
13	14	727	12:08:00	12:09:00		
13	15	727	12:10:00	12:11:00		
13	16	DC-9	12:13:00	12:14:00		
13	17	707	12:16:00	12:17:00		No gas — change prg.
14	1	VAD	14:32:00	14:34:00	320	Alt: 35, 41, 50, 60, 70, 100, 200, 300 m at 1 rev/alt
14	2	747	14:39:00	14:40:00		
14	3	VAD	14:49:00	14:52:00	370 at 10	
14	4	707	14:54:00	14:55:00	330 at 13	
14	5	747	14:56:00	14:58:00		Good
14	6	747	14:59:00	15:00:00		
14	7	727	15:01:00	15:02:00	330 at 15	
14	8	DC-9	15:03:00	15:14:00		
14	9	L-10-11	15:06:00	15:08:00	310 at 11	Looks pretty good
14	10	747	15:10:00	15:12:00		Looks good

Tape ID	Run ID		Time		Est. Wind Azimuth (from)	Comments
JFK	No.	AC Type of VAD	Start	Stop		
14	11	707	15:14:00	15:15:00		O. K.
14	12	DC-8	15:16:00	15:17:00		
14	13	707	15:20:00	15:21:00		Abort, see nothing. (working on processor)
14	14	707	15:22:00	15:22:00		Abort; nothing
14	15	707	15:25:00	15:26:00		Notice 30 kHz bandwidth
14	16	707	15:34:00	15:35:00		
14	17	707	15:35:00	15:36		Looks good
14	18	707	15:36:00	15:37:00	330 at 10	O. K.
14	19	737	15:38:00	15:39:00		Best yet
14	20	707	15:40:00	15:41:00	340 at 12	Good
14	21	707	15:42:00	15:43:00		
14	22	DC-9	15:44:00	15:44:00		Not good
14	23	DC-9	15:46:00	15:47:00		Not good
14	24	VAD	15:49:00	15:51:00		Alt: 35, 41, 50, 60, 70, 100, 200, 300 at 1 rev/alt.
14	25	747	15:52:00	15:54:00		Azimuth wrong, bad run
14	26	747	15:57:00	15:59:00	350 at 8	Good! Best today
14	27	727	16:02:00	16:03:00		Not very good
14	28	707	16:05:00	16:06:00	340 at 8	Looks better
14	29	DC-9	16:06:00	16:07:00		
14	30				340 at 8	Not a run
14	31	DC-8	16:20:00	16:23:00		
14	32	DC-9	16:23:00	16:24:00		
14	33	707	16:24:00	16:26:00	320 - 10	
14	34	DC-8	16:27:00	16:29:00		
14	35	727	16:29:00	16:30:00		
14	36	DC-10	16:34:00	16:35:00	330 - 06	
14	37	DC-8	16:35:00	16:37:00		
14	38	747	16:37:00	16:40:00	340 - 10	
14	39	DC-8	16:41:00	16:42:00	340 - 10	

Tape ID	Run ID		Time		Est. Wind Azimuth (from)	Comments
JFK	No.	AC Type of VAD	Start	Stop		
14	40	707	16:46:00	16:47:00	330 - 10	
14	41	727	16:48:00	16:49:00	330 - 8	
14	42	VAD	16:50:00	16:55:00	330 at 7	Alt: 35, 41, 50, 60, 70, 100, 200, 300 at 1 rev/alt.
14	43	L-10-11	16:57:00	16:58:00		
14	44	747	17:00:00	17:02:00	330 at 8	Lots of hits, but all bumped togather; do not understand display
14	45	747	17:02:00	17:04:00		
14	46	707	17:05:00	17:06:00	320 at 8	
14	47	707	17:06:00	17:08:00		
14	48	747	17:21:00	17:23:00		
14	49	707	17:24:00	17:26:00		
14	50	DC-9	17:29:00	17:30:00	320 at 12	
14	51	727	17:35:00	17:36:00	320 at 10	
14	52	707	17:40:00	17:41:00		Not
14	53	747	17:43:00	17:45:00		Good run
14	54	707	17:46:00	17:47:00		Good run
14	55	DC-8	17:48:00	17:49:00		Good run
14	56	VAD	17:51:00	17:49:00		Good run
14	57	707	17:51:00	17:53:00	310 at 10	Alt: 35, 41, 50, 60, 70, 100, 200, 300 m at 1 rev/alt
14	58	707	17:54:00	17:56:00		
15	1	VAD	10:50:00	10:55:00	130 at 5	Alt: 35, 41, 50, 60, 70, 100, 200, 300 m
15	2	VAD	11:15:00	11:20:00	140 at 5	20 dB S/N on wind, R04 in use
15	3	VAD	11:30:00	11:35:00		
15	4	VAD	11:45:00	11:55:00		Apparent shear or turbulence at 50 m
15	4	VAD	13:49:00	13:55:00	160 at 6	No wind above 70 m
15	5	VAD	14:49:00	14:55:00	200 at 4	R-13 in use
15	5	VAD	15:46:00	15:55:00	200 at 4	Shear at 100 m

```
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ISFILE  =              +1,          +1,          +1000,       +1000,
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                     +1000,       +1000,       +1000,       +1000,
                     +1000,       +1000,       +1000,       +1000,
                     +1000,       +1000,       +1000,       +1000
NRUN    =             +19
ZLASER  =    .70000000E+01
ZLASCN  =    .00000000E+00
INTVEL  =              +2
NPSUF   =              +4
APERCT  =    .10000000E+00
BPERCT  =    .10000000E+00
CPERCT  =    .50000000E+00
RPERCT  =    .31415927E+00
EPERCT  =    .15000000E+01
NOISEF  =              +0
ADJI    =    .00000000E+00
ANGSW   =    .00000000E+00
WANGLE  =    .00000000E+00
WINDMP  =    .30000000E+03
LFLIP   =              +3
ISINE   =              +2
EDIT    =    .20000000E+00
MOVAVE  =              +5
YLIM    =    .00000000E+00,  .00000000E+00
ZLIM    =    .00000000E+00,  .00000000E+00
ISCALE  =              +1
YR      =    .40000000E+03
YL      =   -.40000000E+03
ZT      =    .20000000E+03
TMAX    =    .12000000E+03
VMAX    =    .80000000E+02
NSPLT   =             +12
JPROF   =              +1
IMULT   =              +0
IOP1    =              +2
IOP2    =              +2
IOP3    =              +2
IOP4    =              +1

$END
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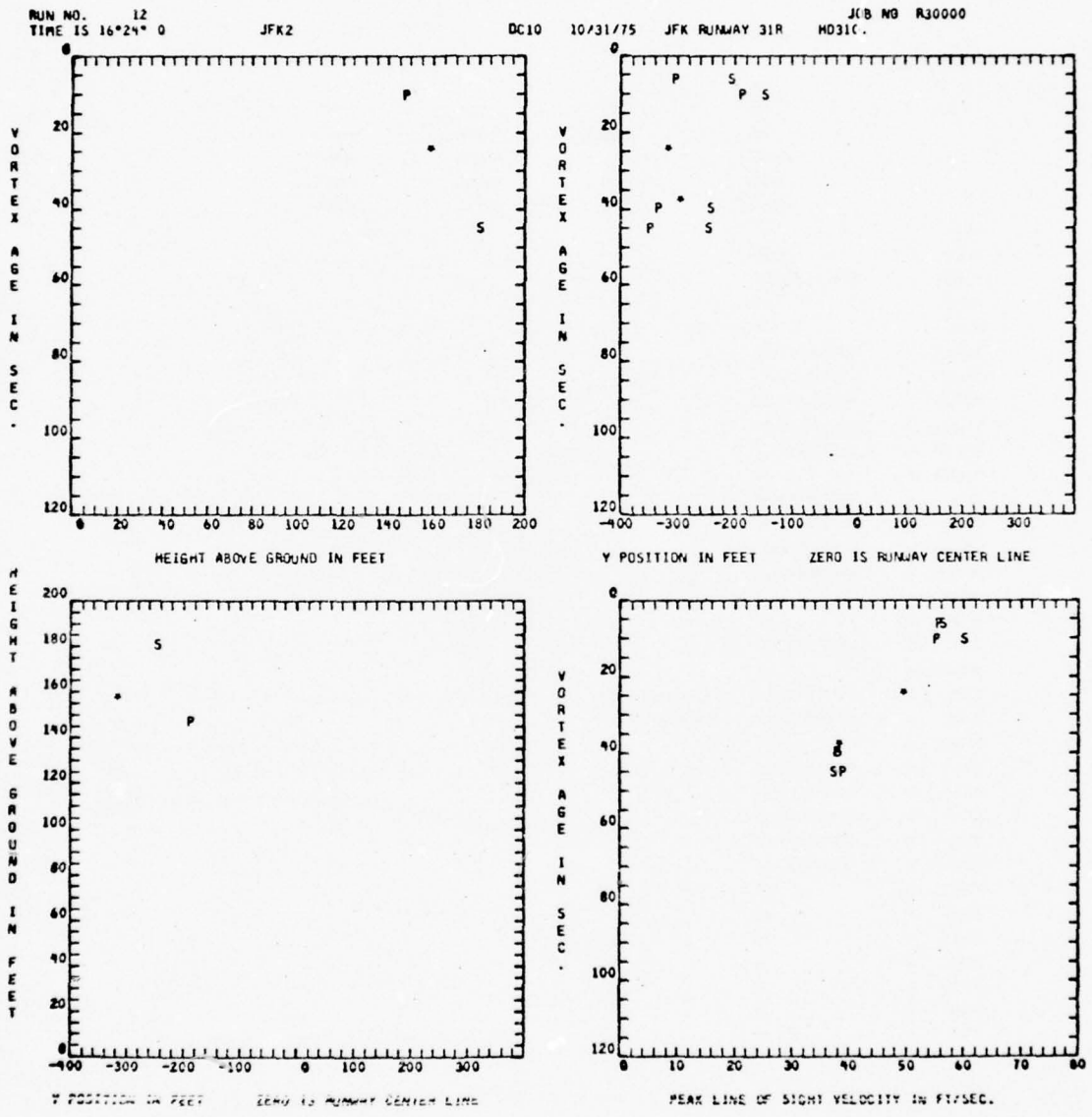
RUN NO. 12
TIME IS 16°29' 0
JFK2
DC10 10/31/75 JFK RUNWAY 31R HD31C.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

```
                    JFK3
$DATA
IGROUP  =              +0
ISFILE  =              +1,            +1,            +18,            +18,
                      +36,           +36,          +1000,          +1000,
                    +1000,         +1000,          +1000,          +1000,
                    +1000,         +1000,          +1000,          +1000,
                    +1000,         +1000,          +1000,          +1000
NRUN    =             +48
ZLASER  =    .70000000E+01
ZLASCN  =    .00000000E+00
INTVEL  =              +2
NPSUF   =              +4
APERCT  =    .10000000E+00
BPERCT  =    .10000000E+00
CPERCT  =    .50000000E+00
RPERCT  =    .31415927E+00
EPERCT  =    .15000000E+01
NOISEF  =              +0
ADJ1    =    .00000000E+00
ANGSW   =    .00000000E+00
WANGLE  =    .00000000E+00
WINDHP  =    .80000000E+03
LFLIP   =              +3
ISINE   =              +2
EDIT    =    .20000000E+00
MOVAVE  =              +5
YLIM    =    .00000000E+00,   .00000000E+00
ZLIM    =    .00000000E+00,   .00000000E+00
ISCALE  =              +1
YR      =    .40000000E+03
YL      =   -.40000000E+03
ZT      =    .20000000E+03
TMAX    =    .12000000E+03
VMAX    =    .80000000E+02
NSPLT   =             +12
JPROF   =              +1
IMULT   =              +0
IOP1    =              +2
IOP2    =              +2
IOP3    =              +2
IOP4    =              +1

$END
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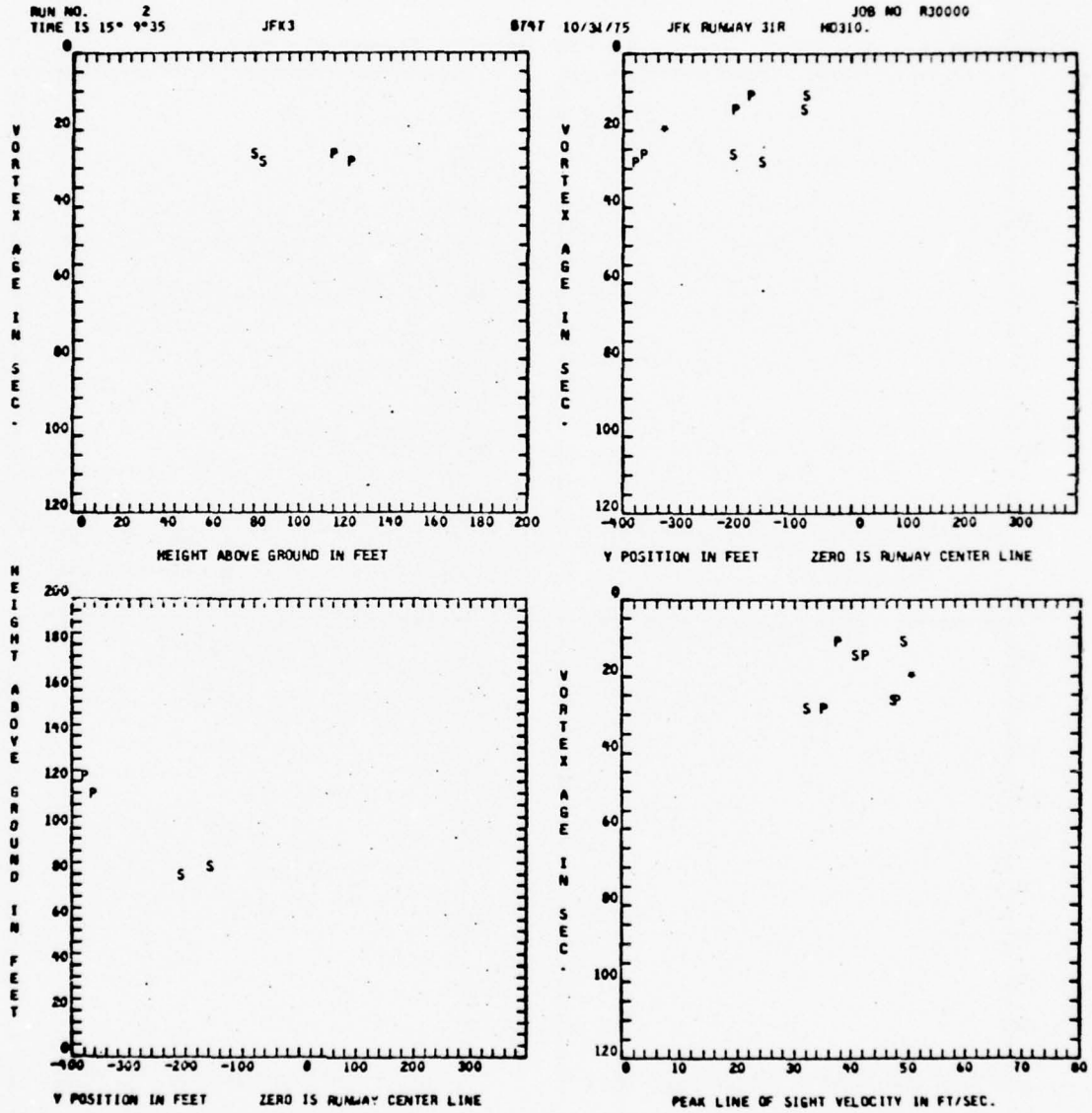
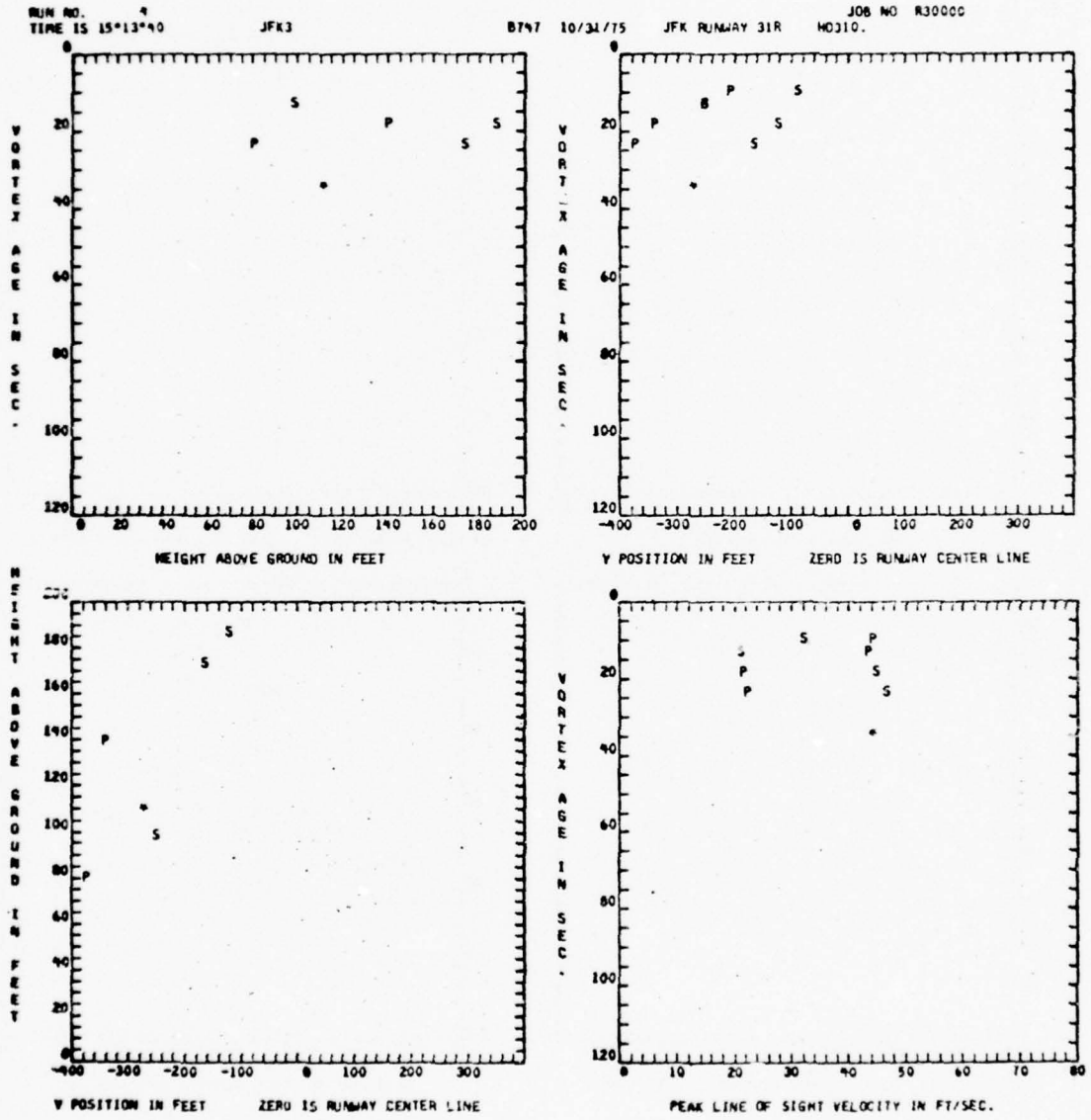
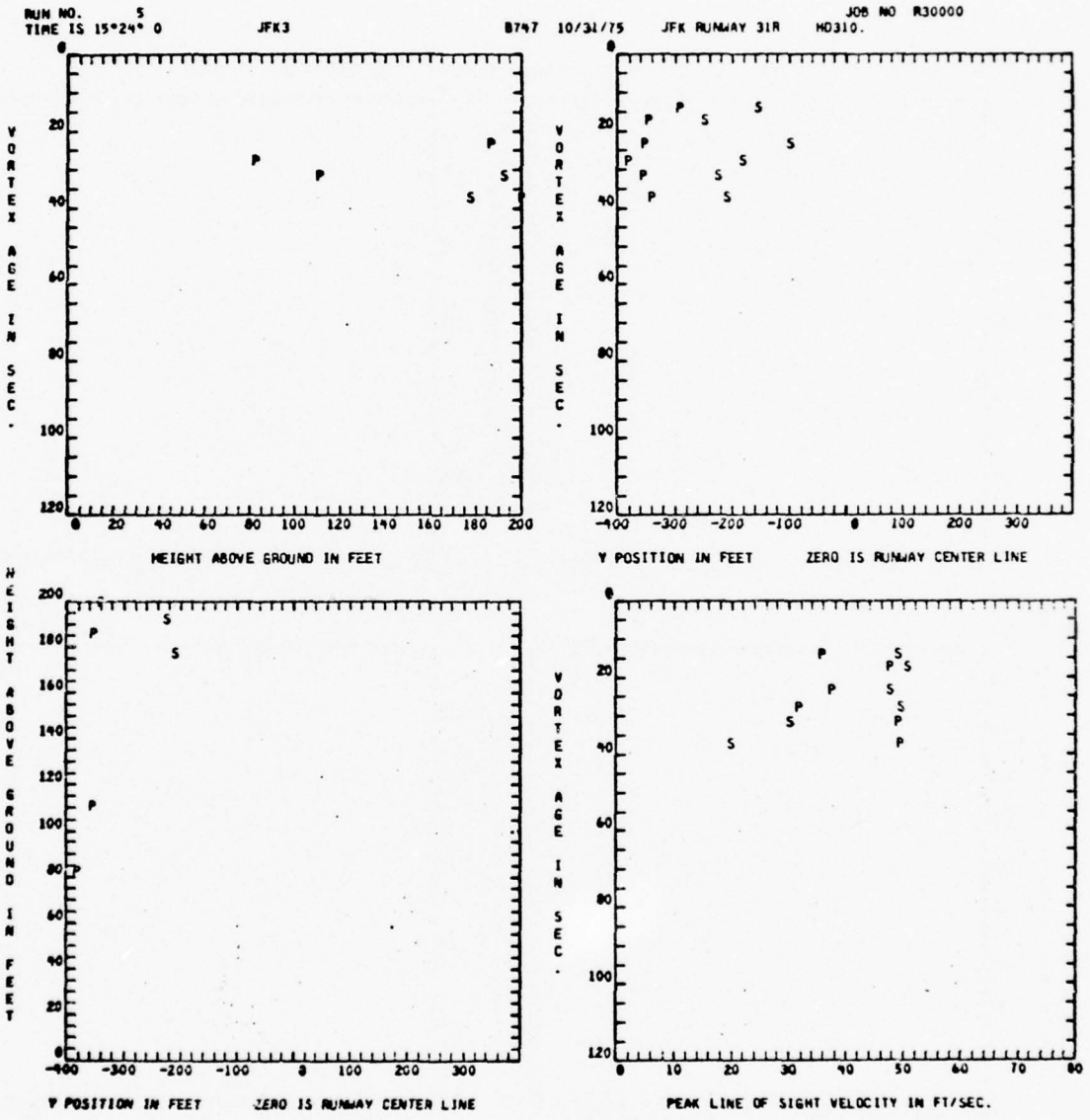
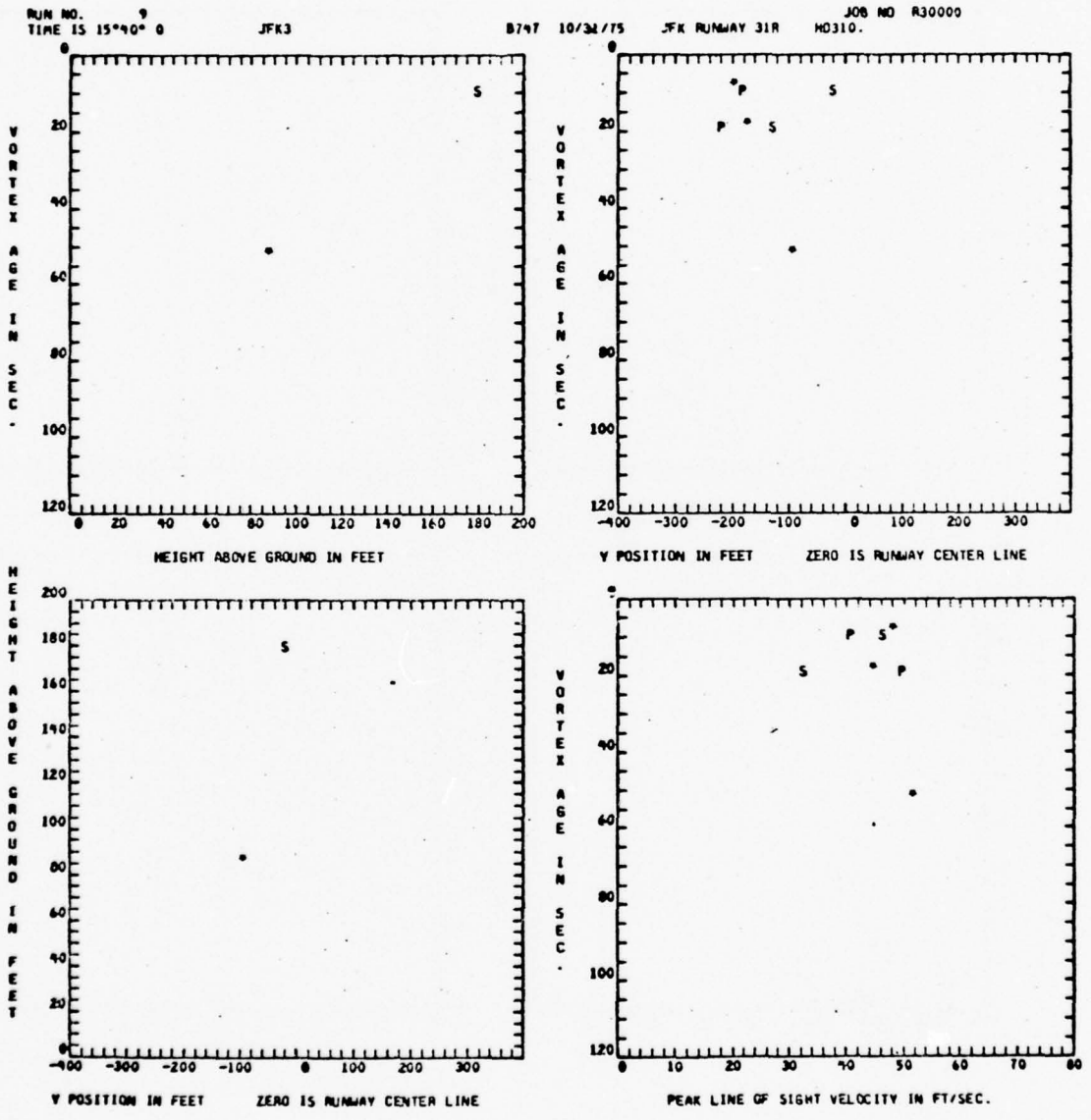
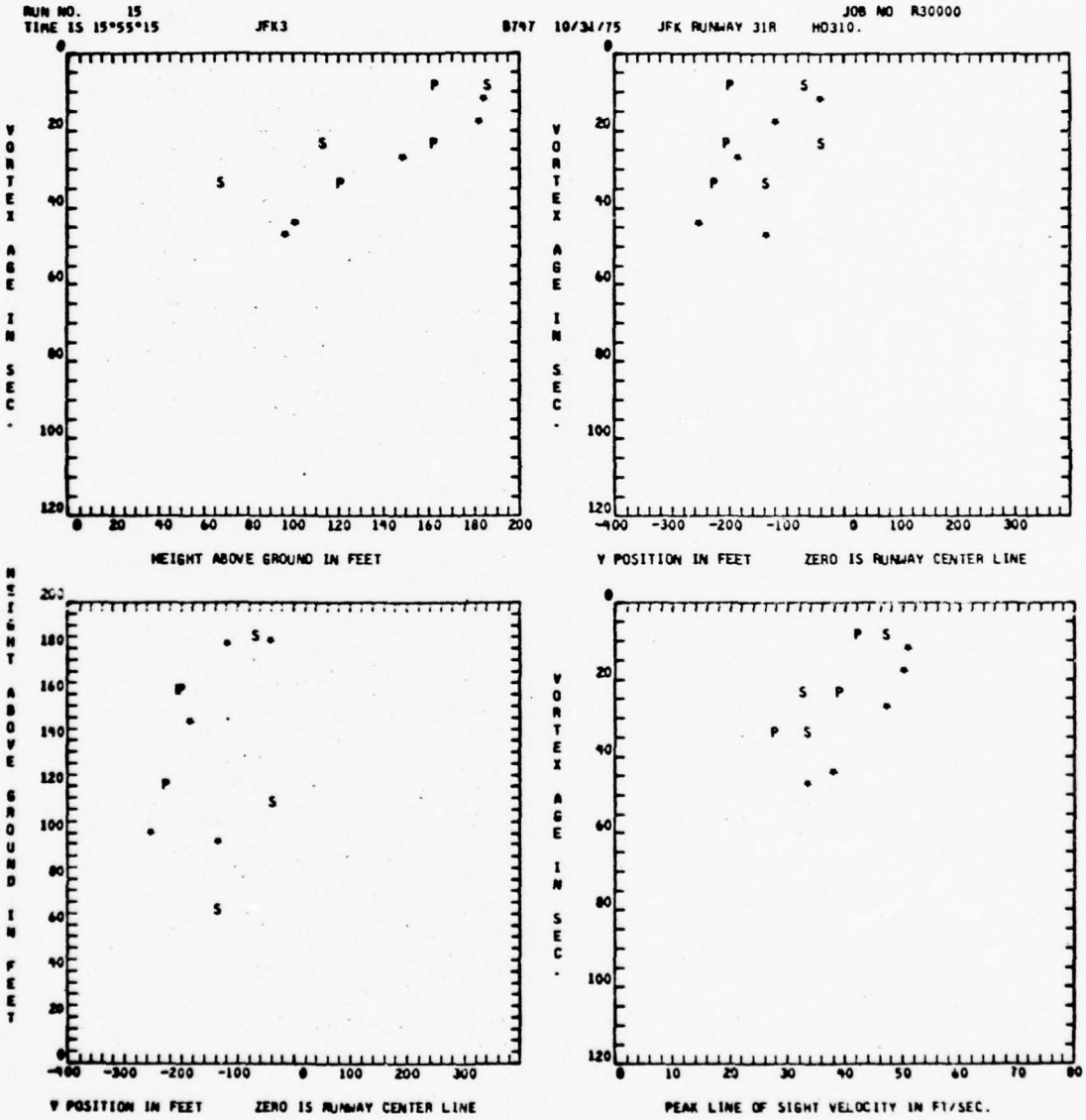
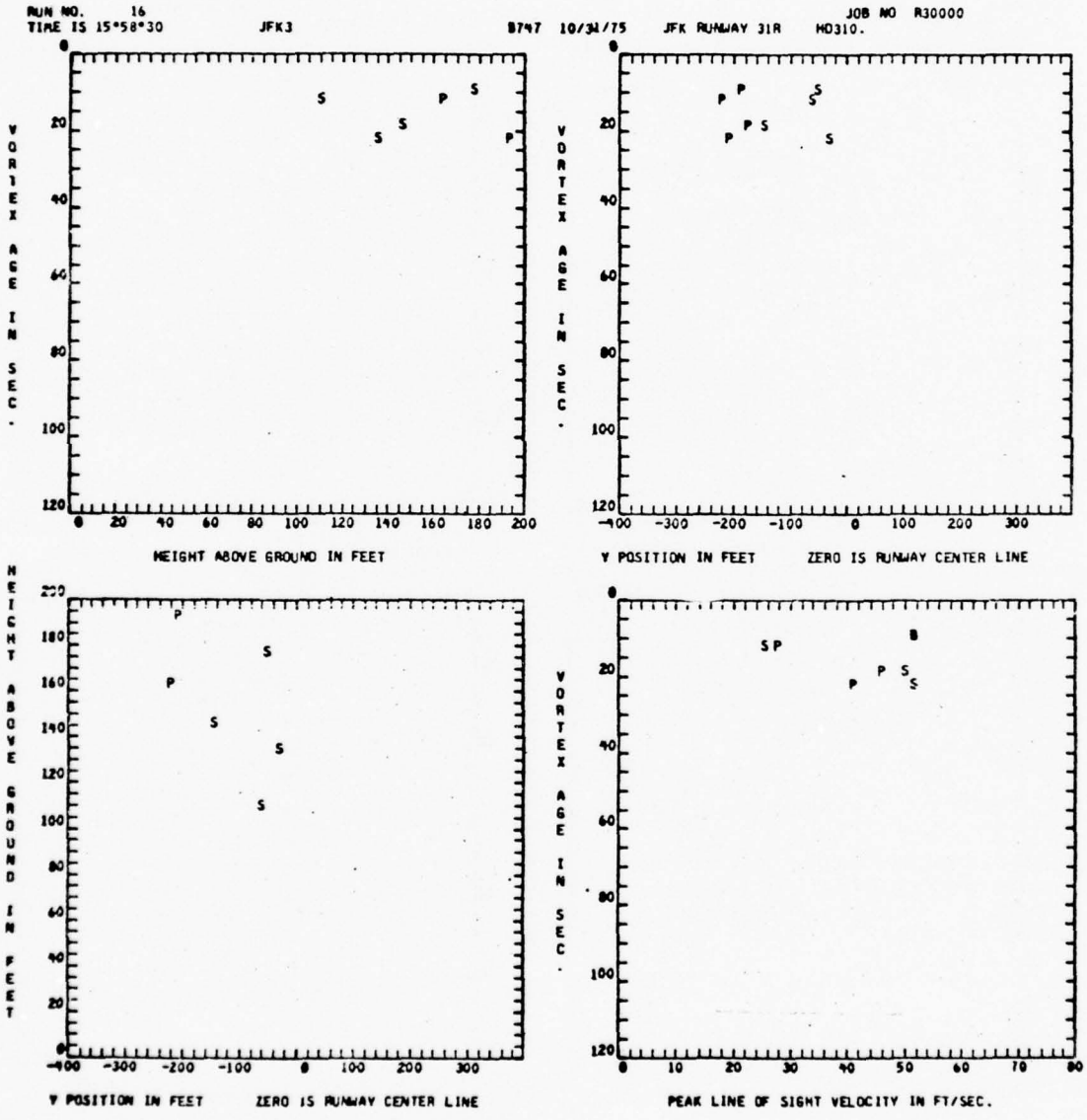

RUN NO. 2
TIME IS 15° 9°35
JFK3
B747 10/31/75 JFK RUNWAY 31R MD310.
JOB NO RJ0000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

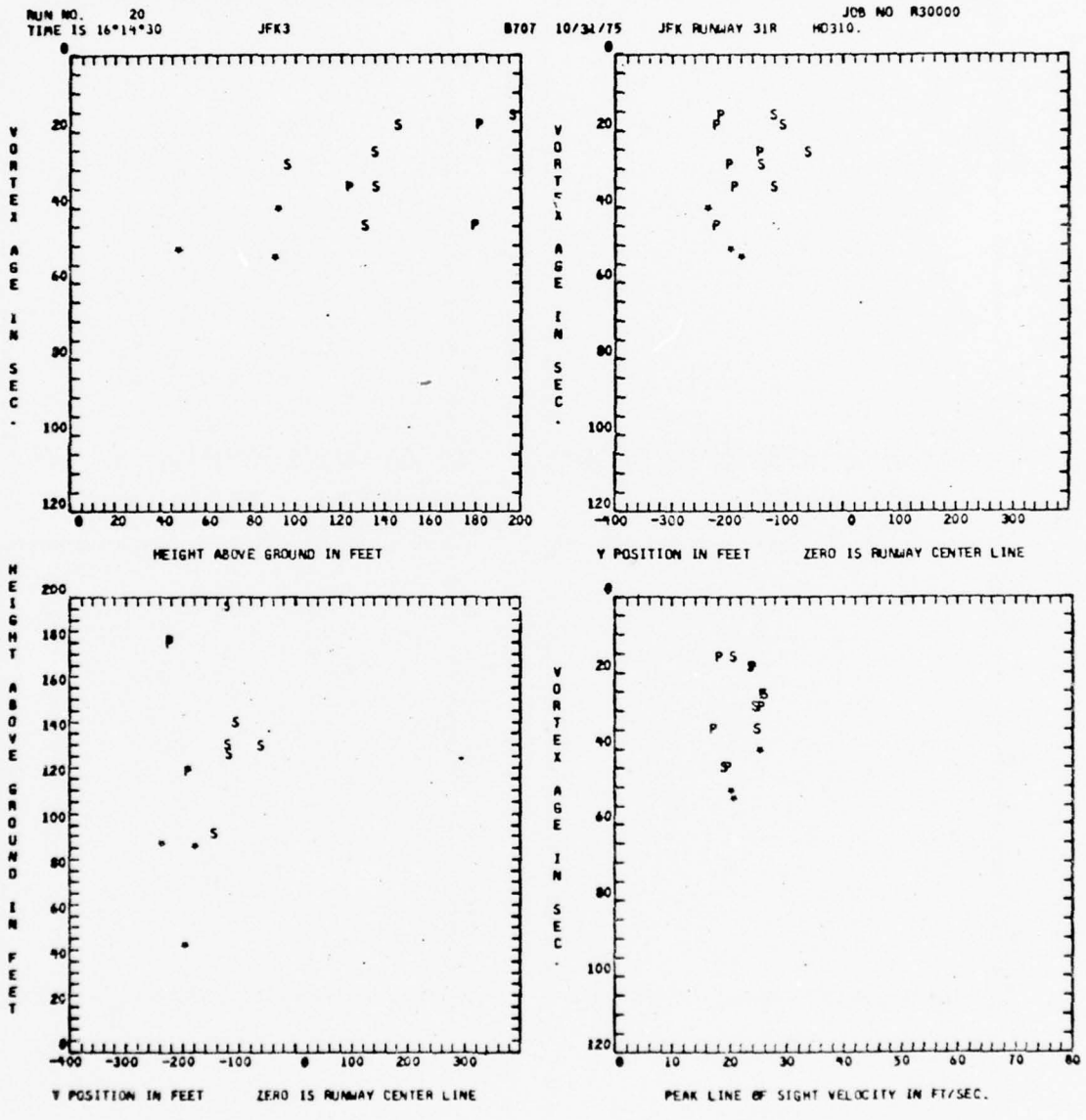

RUN NO. 4
TIME IS 15°13°40
JFK3
B747 10/31/75 JFK RUNWAY 31R
JOB NO R30000
HDJ10.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

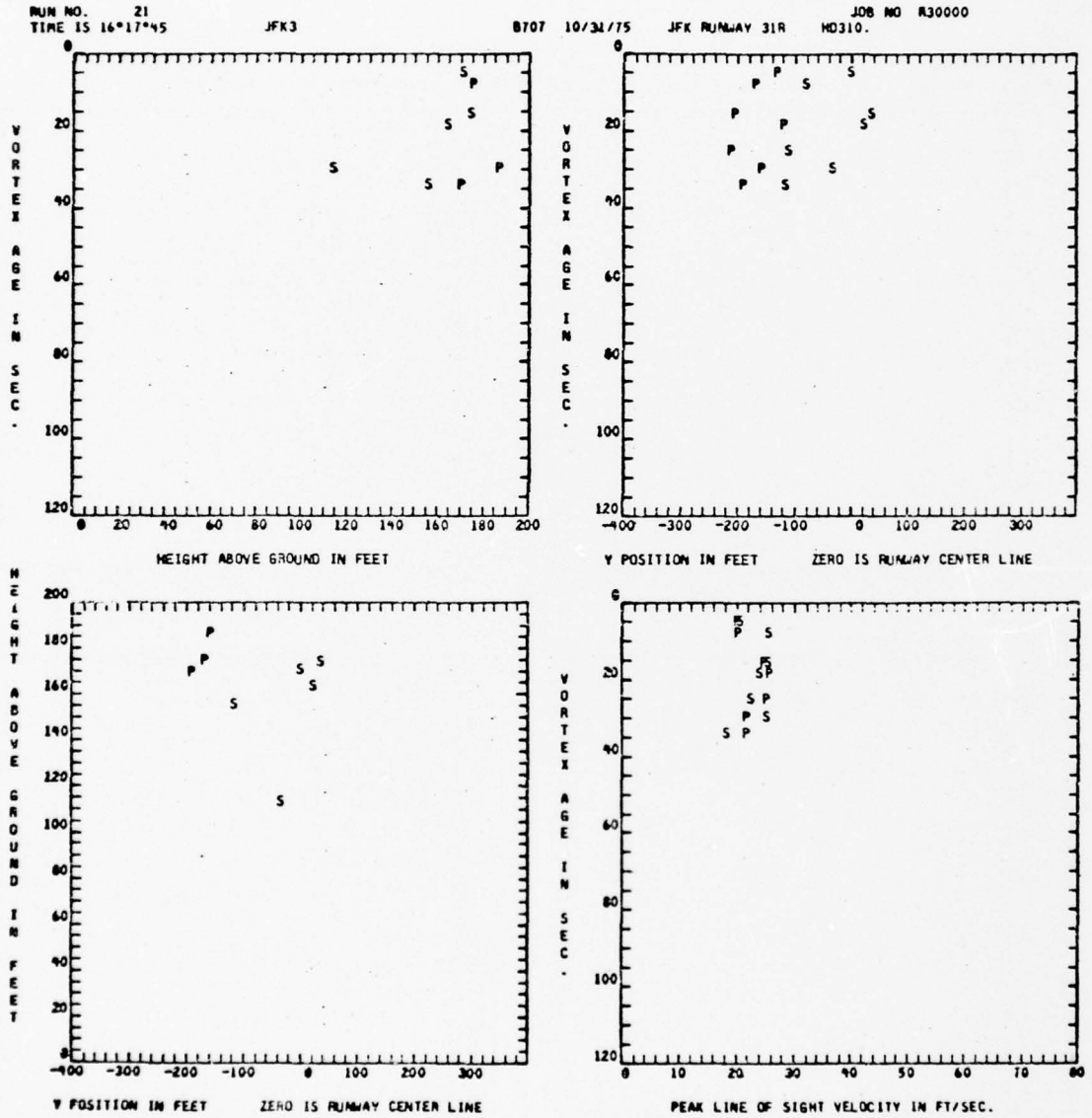

RUN NO. 5
TIME IS 15°24° 0
JFK3
B747 10/31/75 JFK RUNWAY 31R H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

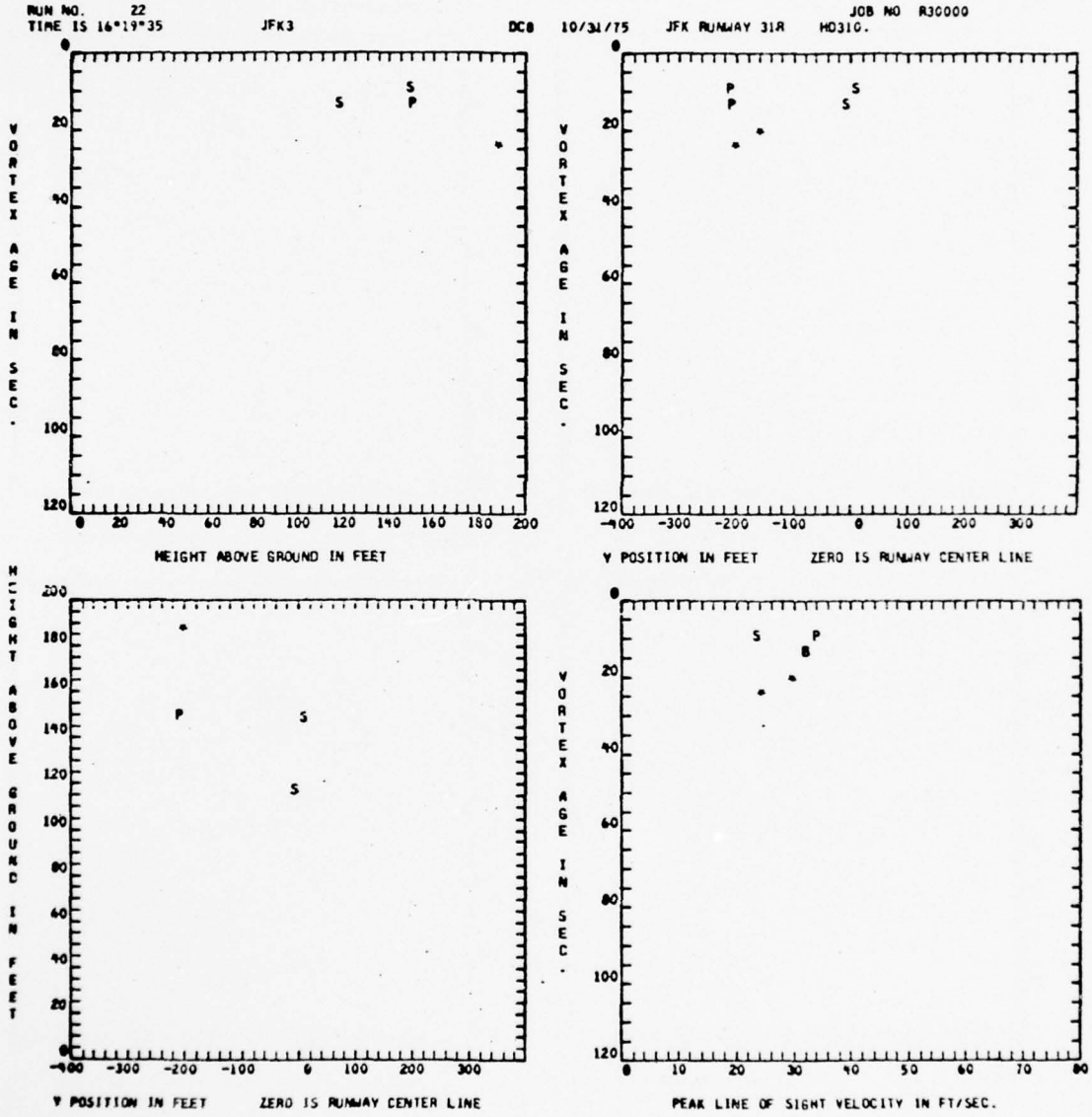

RUN NO. 9
TIME IS 15*90* 0
JFK3
B747 10/31/75 JFK RUNWAY 31R H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

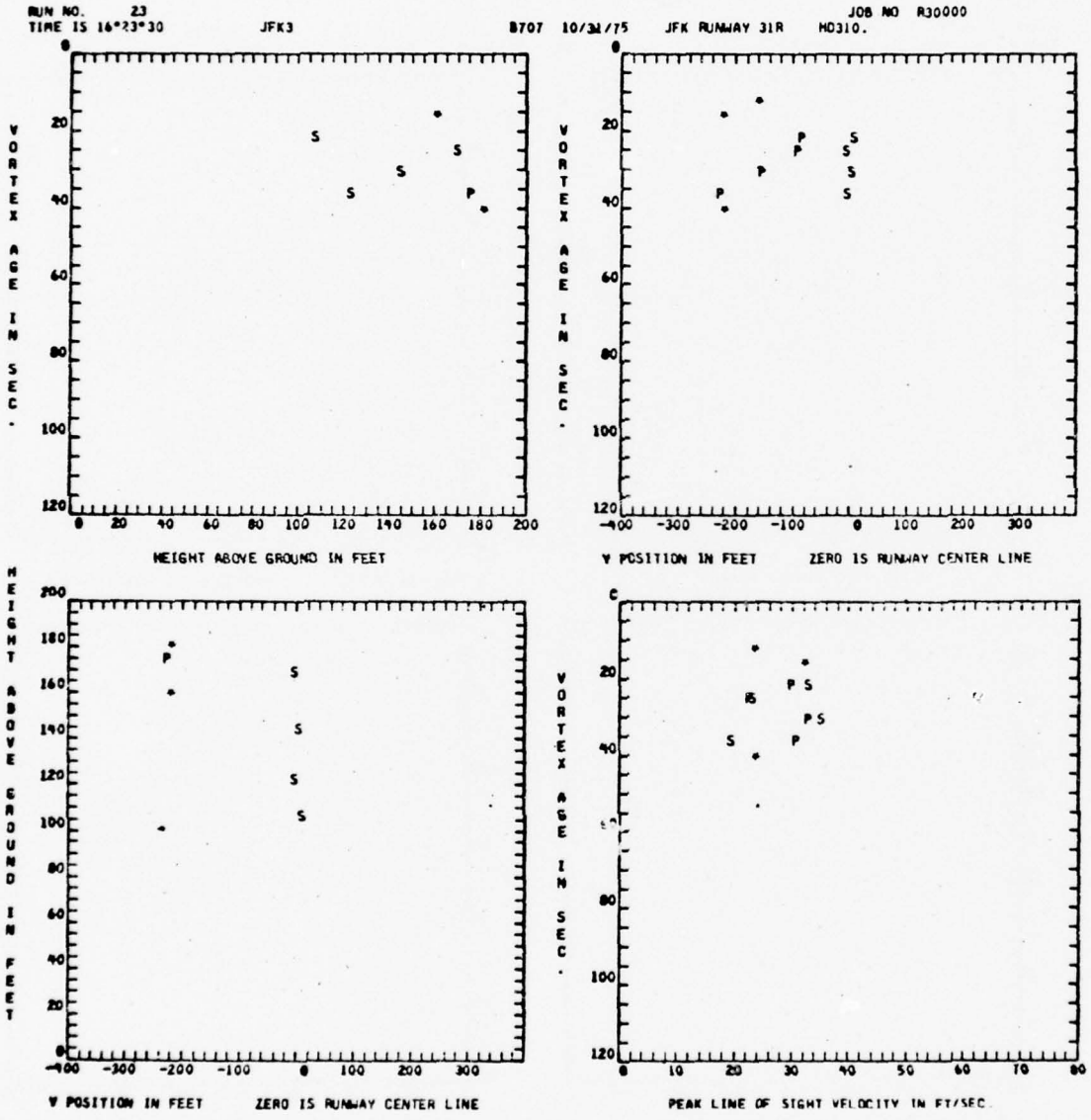

RUN NO. 15
TIME IS 15°55°15
JFK3
B747 10/31/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

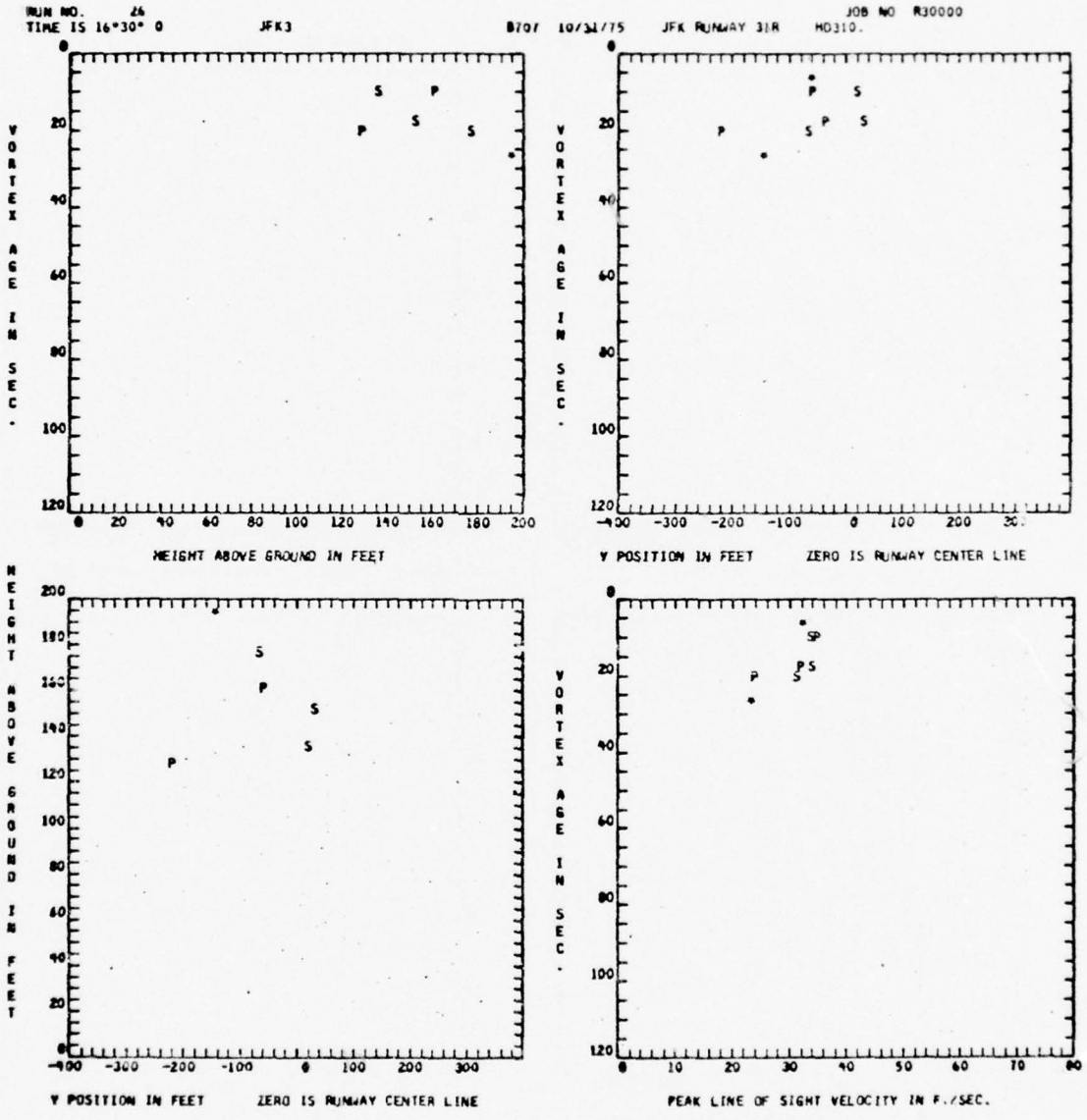

RUN NO. 16
TIME IS 15°58°30
JFK3
B747 10/31/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

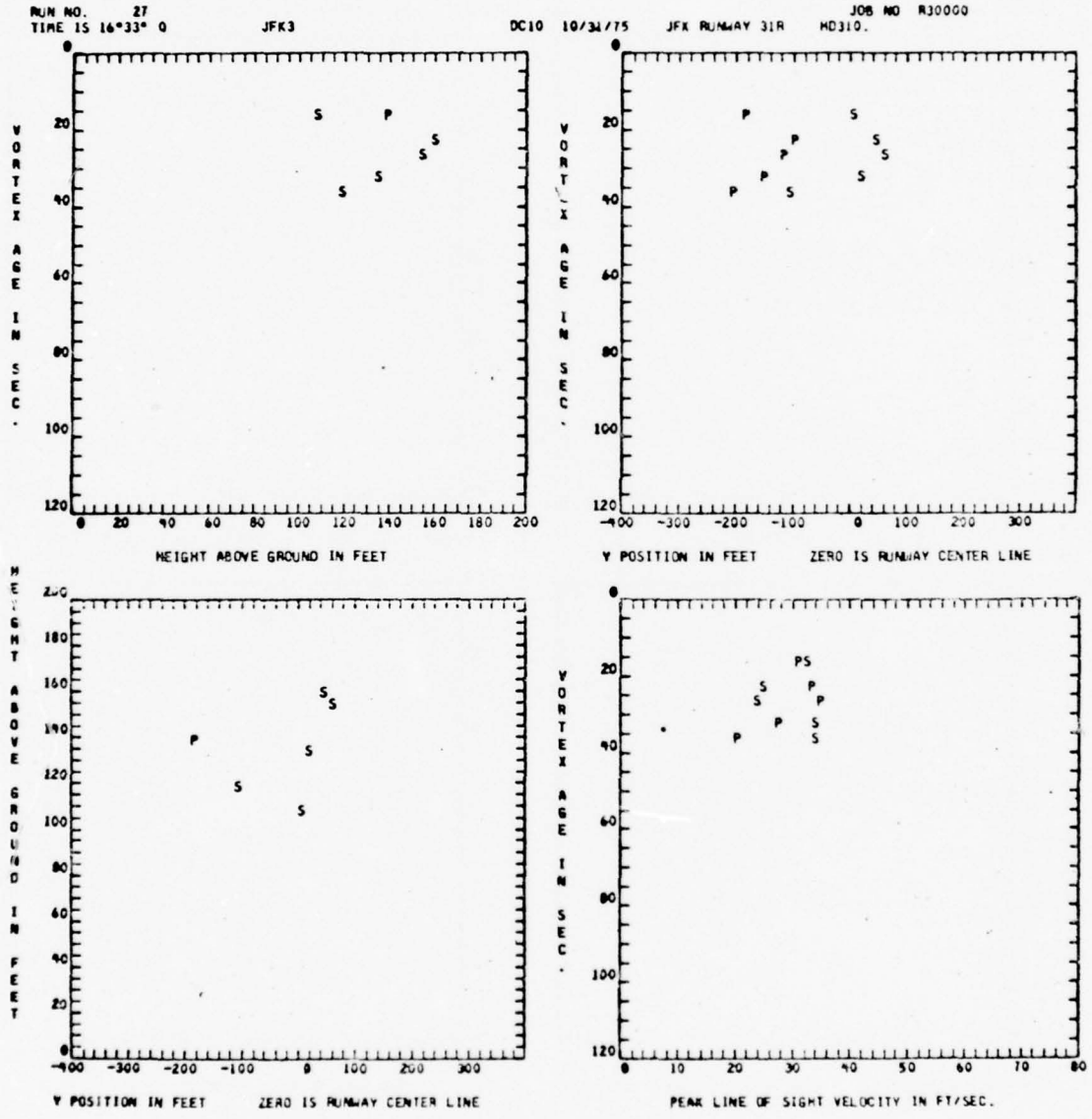

RUN NO. 20
TIME IS 16°14°30
JFK3
B707 10/31/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

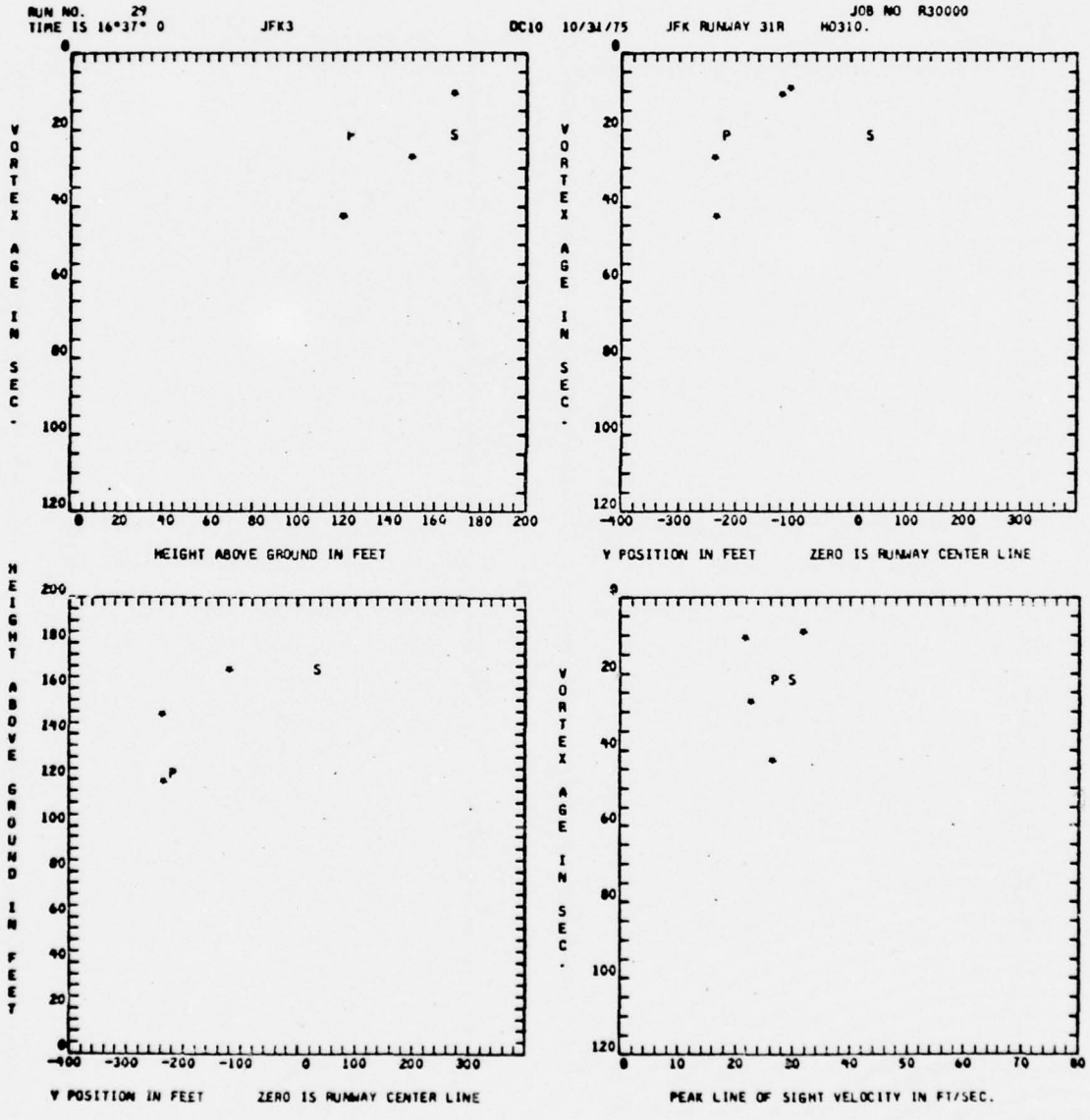

RUN NO. 21
TIME IS 16°17°45
JFK3
B707 10/31/75 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

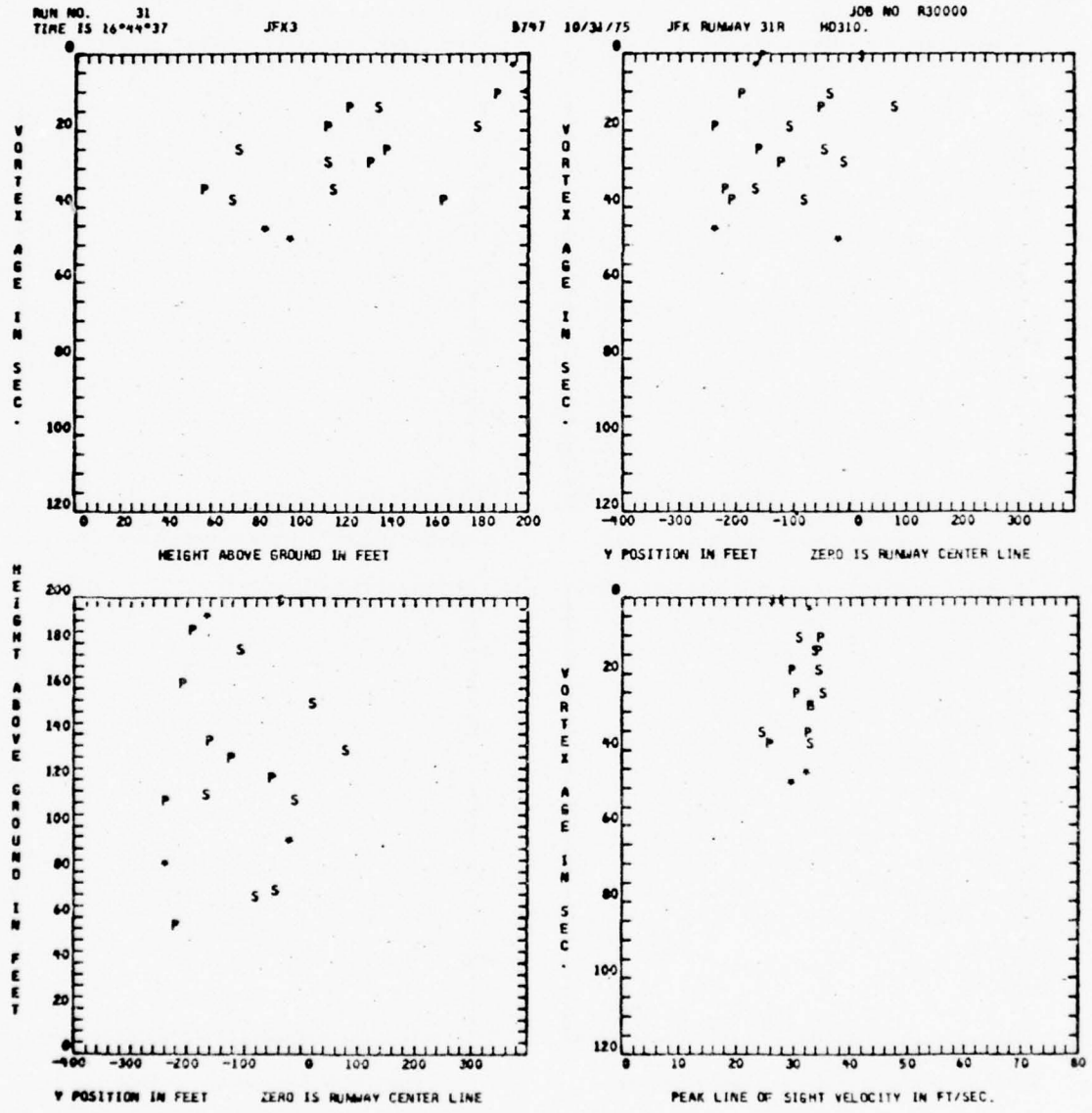

RUN NO. 22
TIME IS 16°19°35
JFK3
DC8
10/31/75
JFK RUNWAY 31R
HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

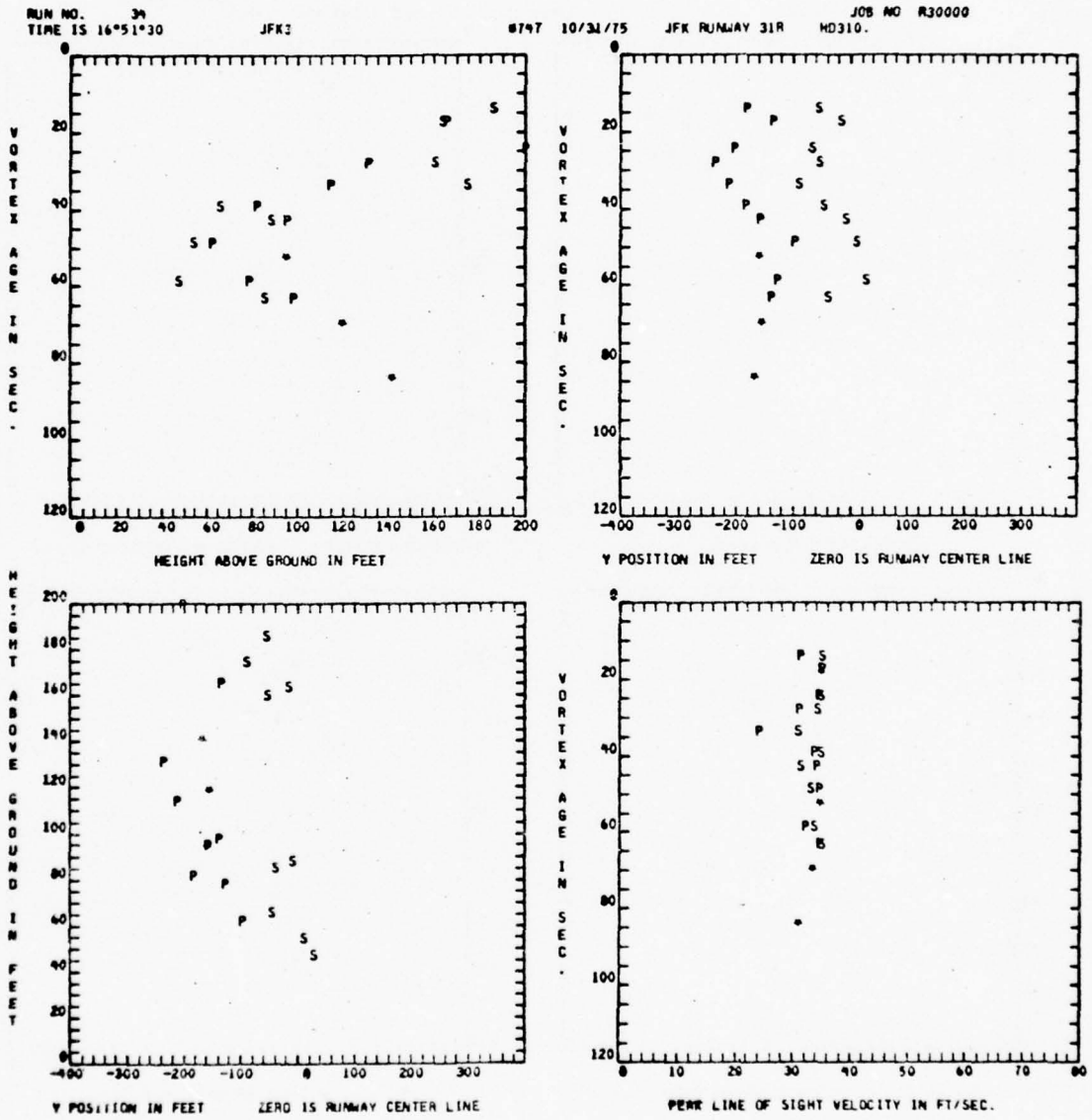

RUN NO. 23
TIME IS 16°23°30
JFK3
B707 10/31/75 JFK RUNWAY 31R H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC

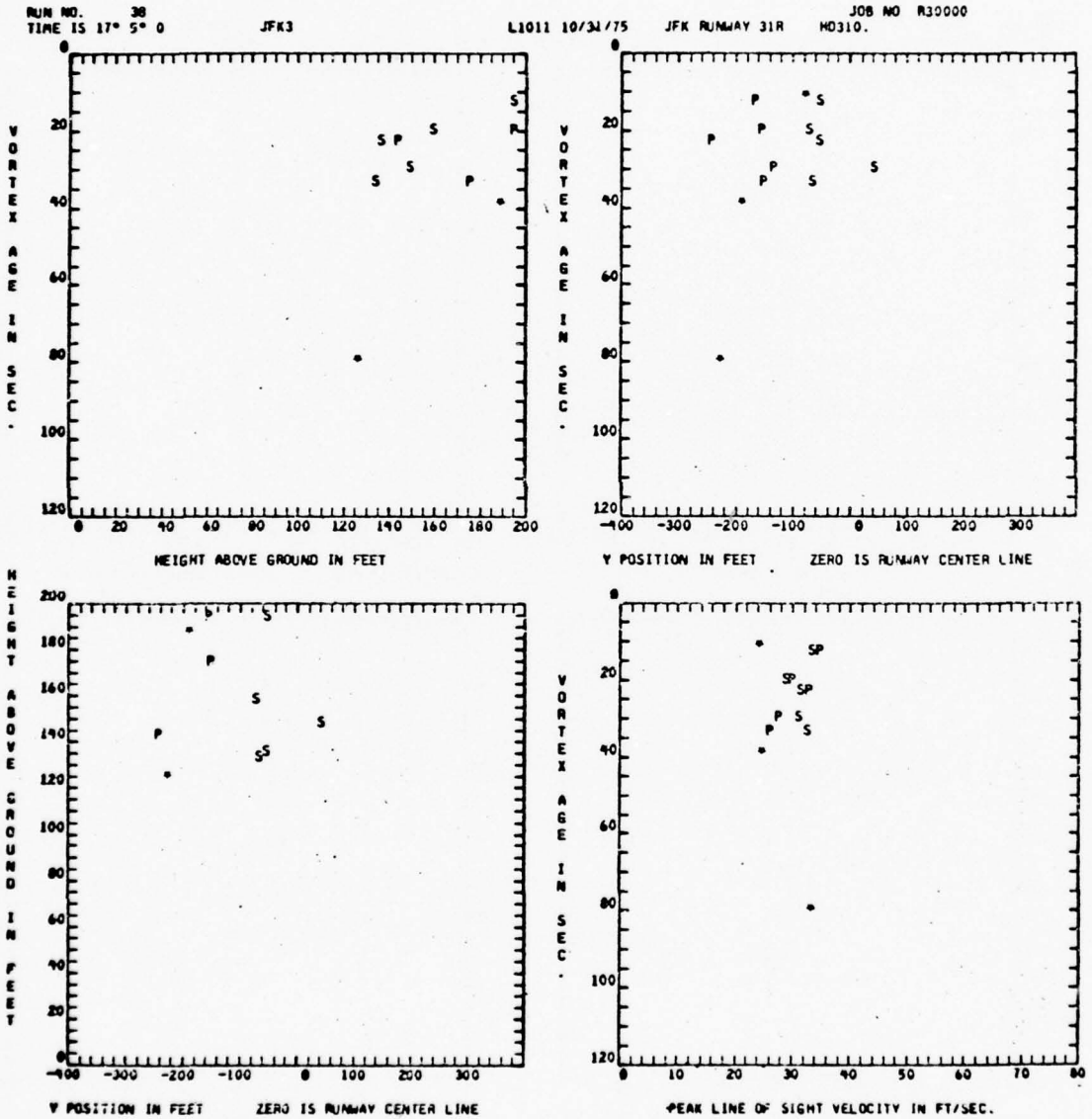

RUN NO. 26
TIME IS 16°30° 0
JFK3
B707 10/31/75
JFK RUNWAY 31R
JOB NO R30000
H0310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN F./SEC.

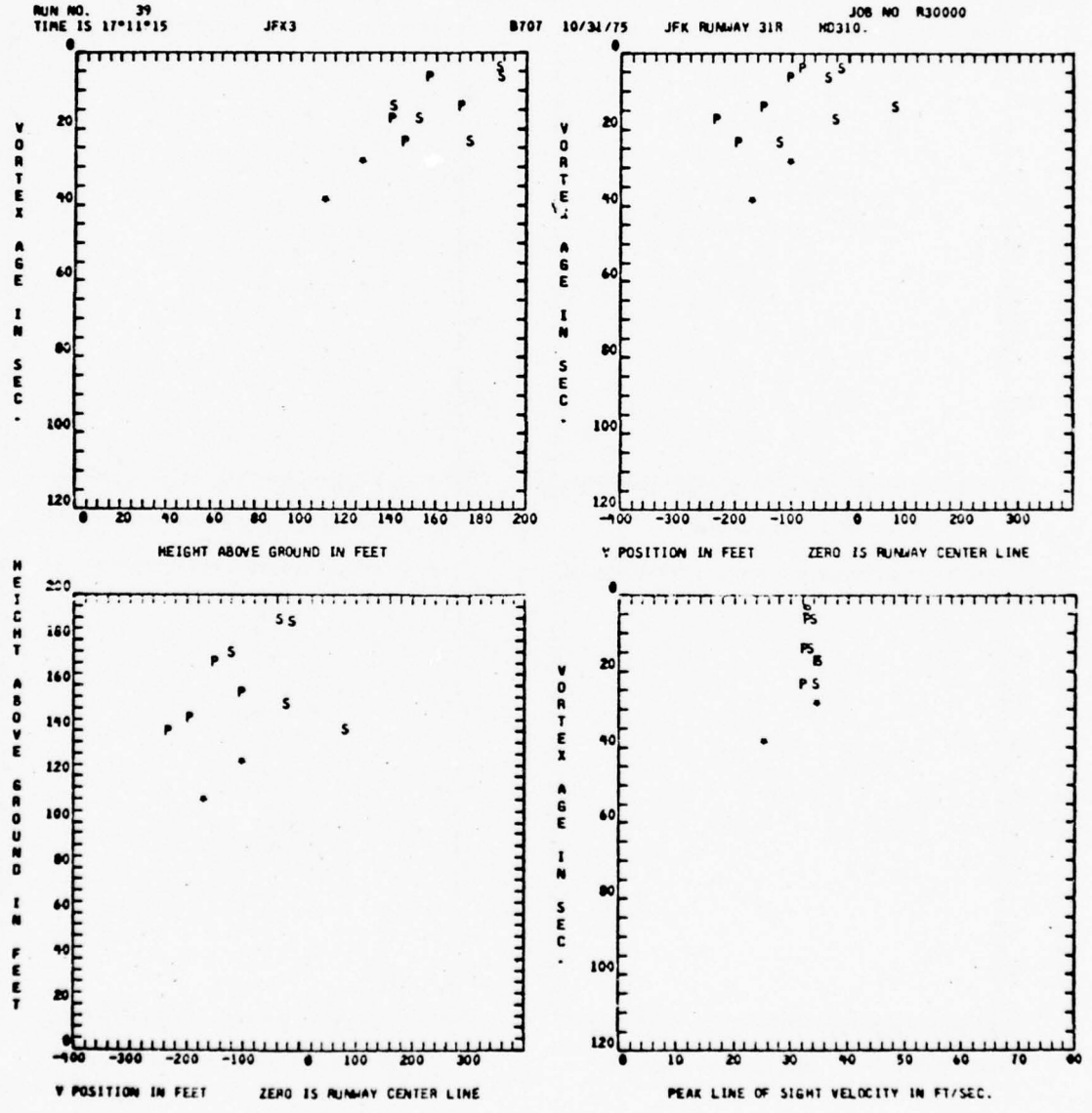

RUN NO. 27
TIME IS 16°33° 0
JFK3
DC10 10/31/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

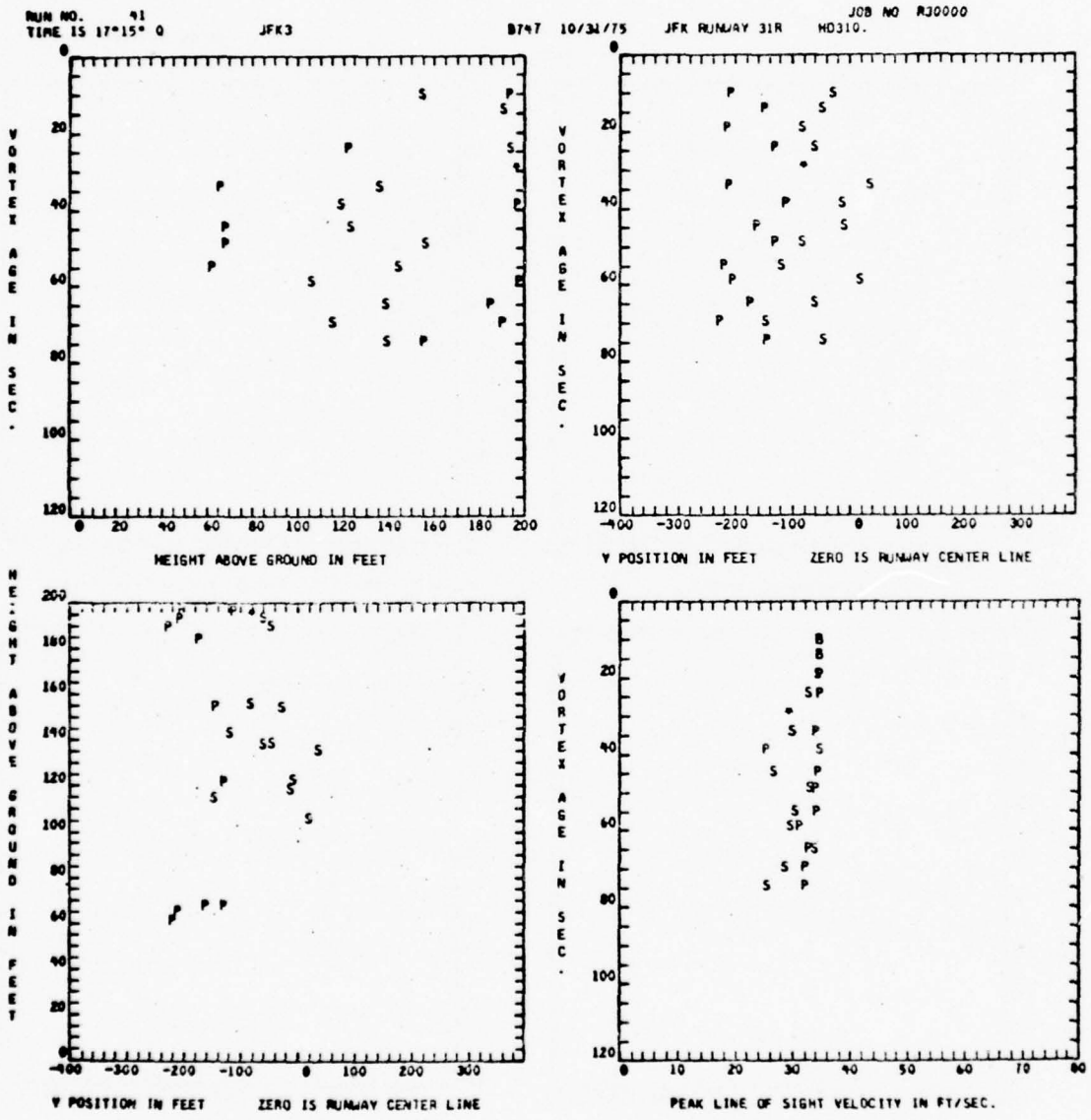

RUN NO. 29
TIME IS 16°37° 0
JFK3
DC10 10/31/75 JFK RUNWAY 31R
JOB NO R30000
H0310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

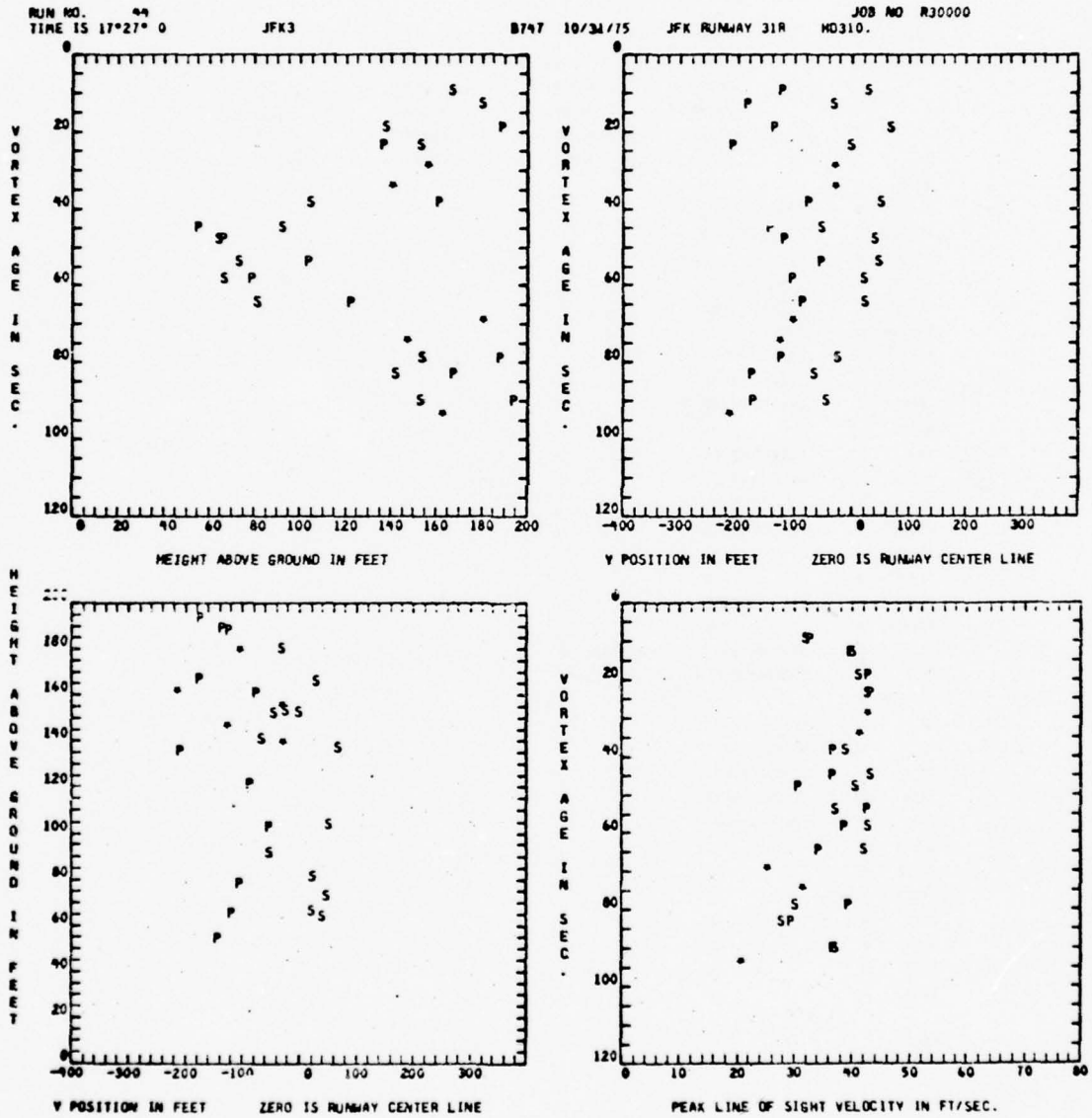

RUN NO. 31
TIME IS 16°44°37
JFX3
B747 10/31/75 JFK RUNWAY 31R H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 39
TIME IS 16°51°30
JFK3
#747 10/31/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
PERP LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 38
TIME IS 17° 5° 0
JFK3
L1011 10/31/75 JFK RUNWAY 31R
JOB NO R30000
H0310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

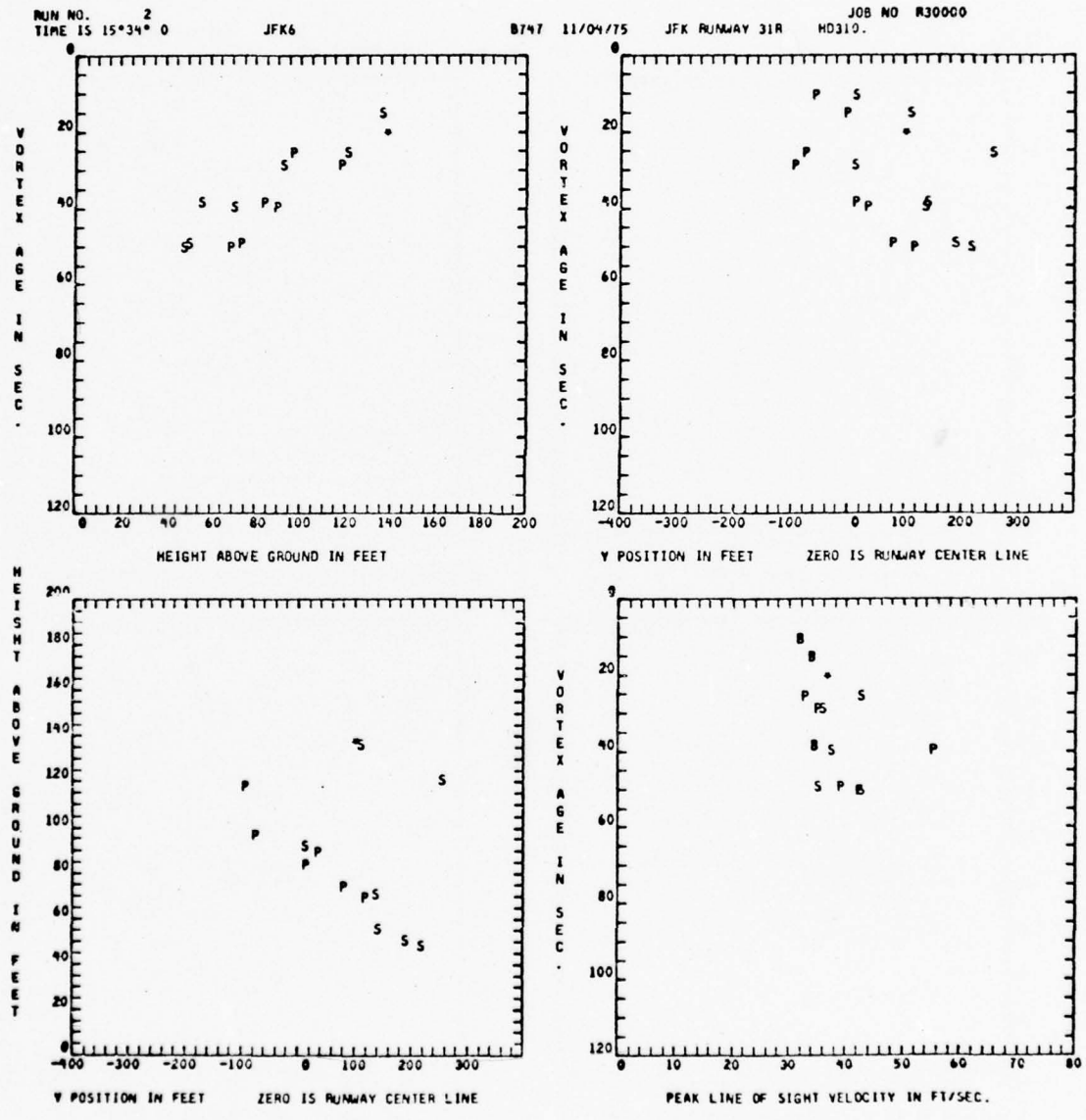

RUN NO. 39
TIME IS 17°11°15
JFK3
B707 10/31/75 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

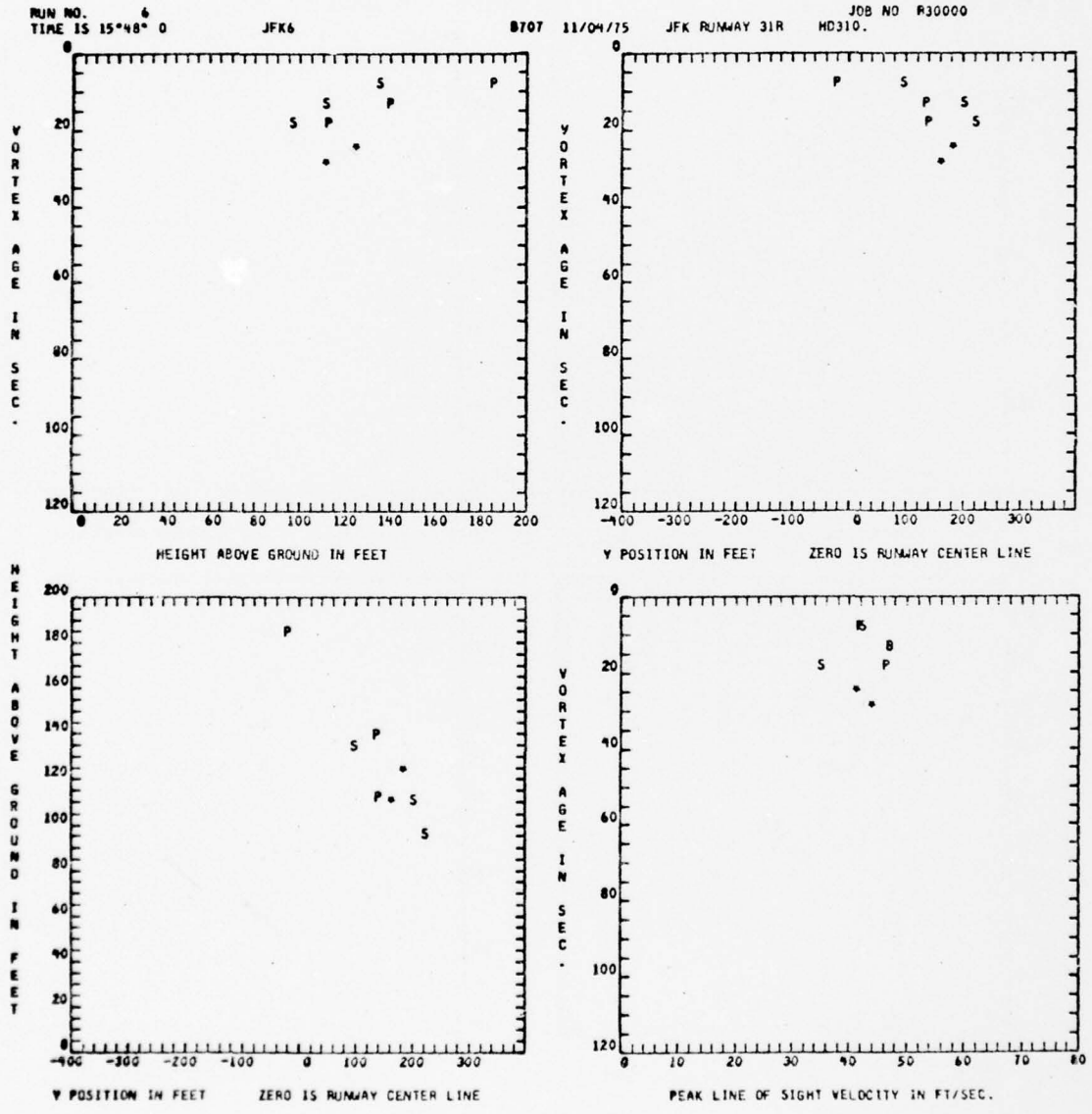

RUN NO. 41
TIME IS 17°15° 0
JFK3
B747 10/31/75 JFK RUNWAY 31R HD310.
JOB NO RJ0000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

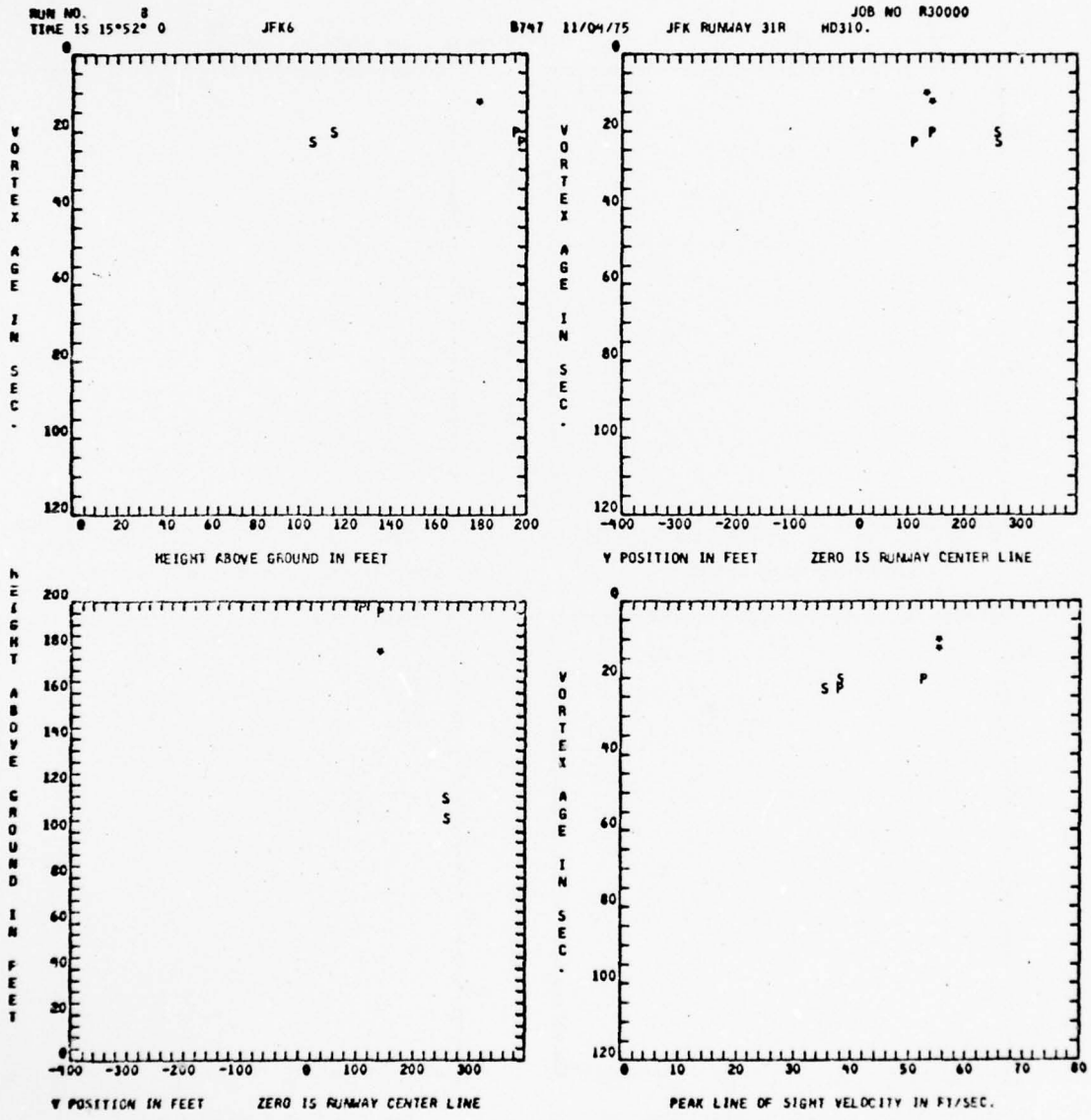

RUN NO. 44
TIME IS 17°27° 0
JFK3
B747 10/31/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

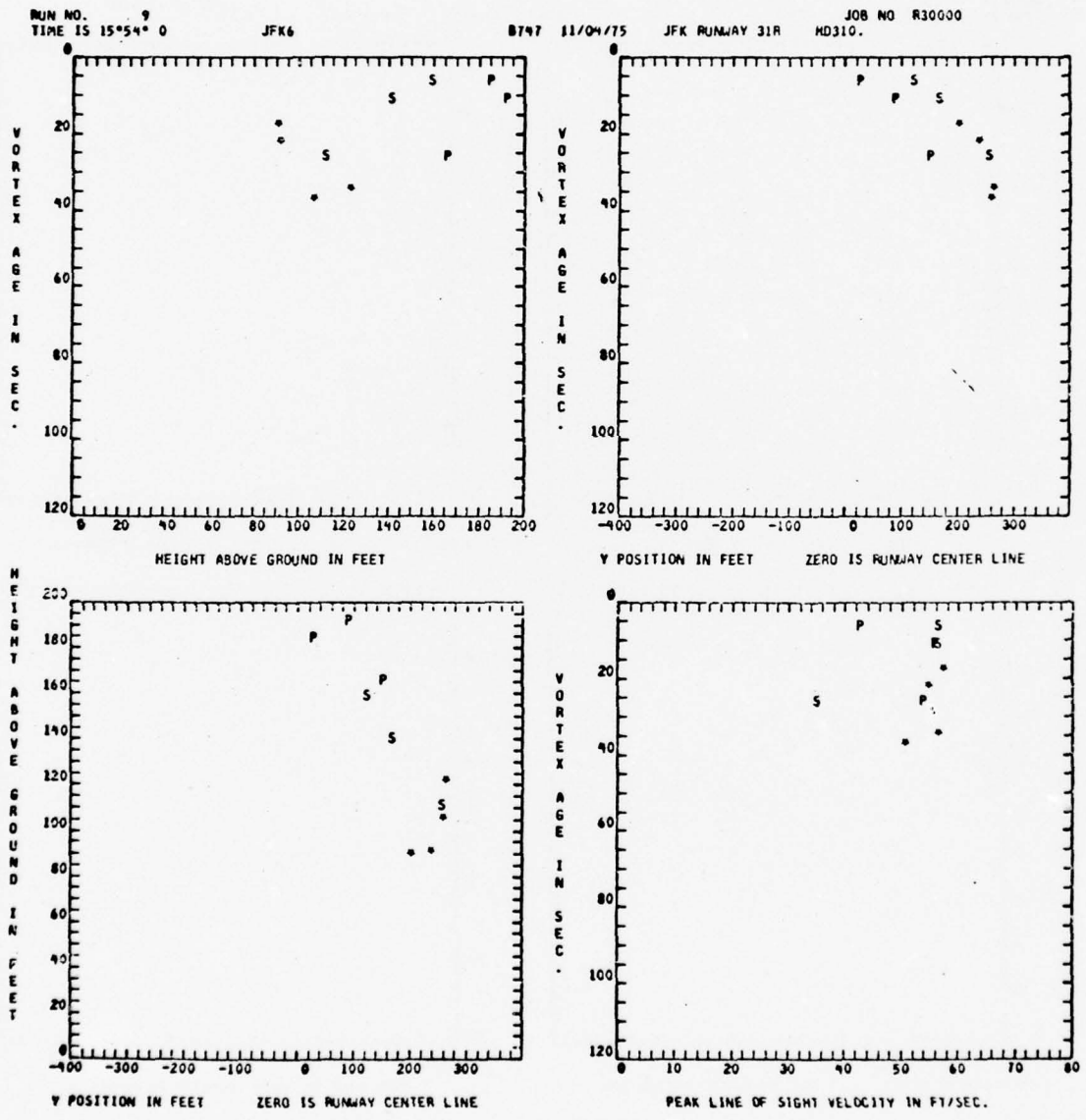
```
                              JFK6
$DATA
IGROUP  =                    +0
ISFILE  =                    +1,              +1,              +22,             +22,
                           +1000,           +1000,           +1000,           +1000,
                           +1000,           +1000,           +1000,           +1000,
                           +1000,           +1000,           +1000,           +1000,
                           +1000,           +1000,           +1000,           +1000
NRUN                        +23
ZLASER  =       .70000000E+01
ZLASCN  =       .00000000E+00
INTVEL  =                    +2
NPSUF   =                    +4
APERCT  =       .10000000E+00
BPERCT  =       .10000000E+00
CPERCT  =       .50000000E+00
RPERCT  =       .31415927E+00
EPERCT  =       .15000000E+01
NOISEF  =                    +0
ADJ1    =       .00000000E+00
ANGSW   =       .00000000E+00
WANGLE  =       .00000000E+00
WINDHP  =       .80000000E+03
LFLIP   =                    +3
ISINE   =                    +2
EDIT    =       .20000000E+00
MOVAVE  =                    +5
YLIM    =       .00000000E+00,   .00000000E+00
ZLIM    =       .00000000E+00,   .00000000E+00
ISCALE  =                    +1
YR      =       .40000000E+03
YL      =      -.40000000E+03
ZT      =       .20000000E+03
TMAX    =       .12000000E+03
VMAX    =       .80000000E+02
NSPLT   =                   +12
JPROF   =                    +1
IMULT   =                    +0
IOP1    =                    +2
IOP2    =                    +2
IOP3    =                    +2
IOP4    =                    +1

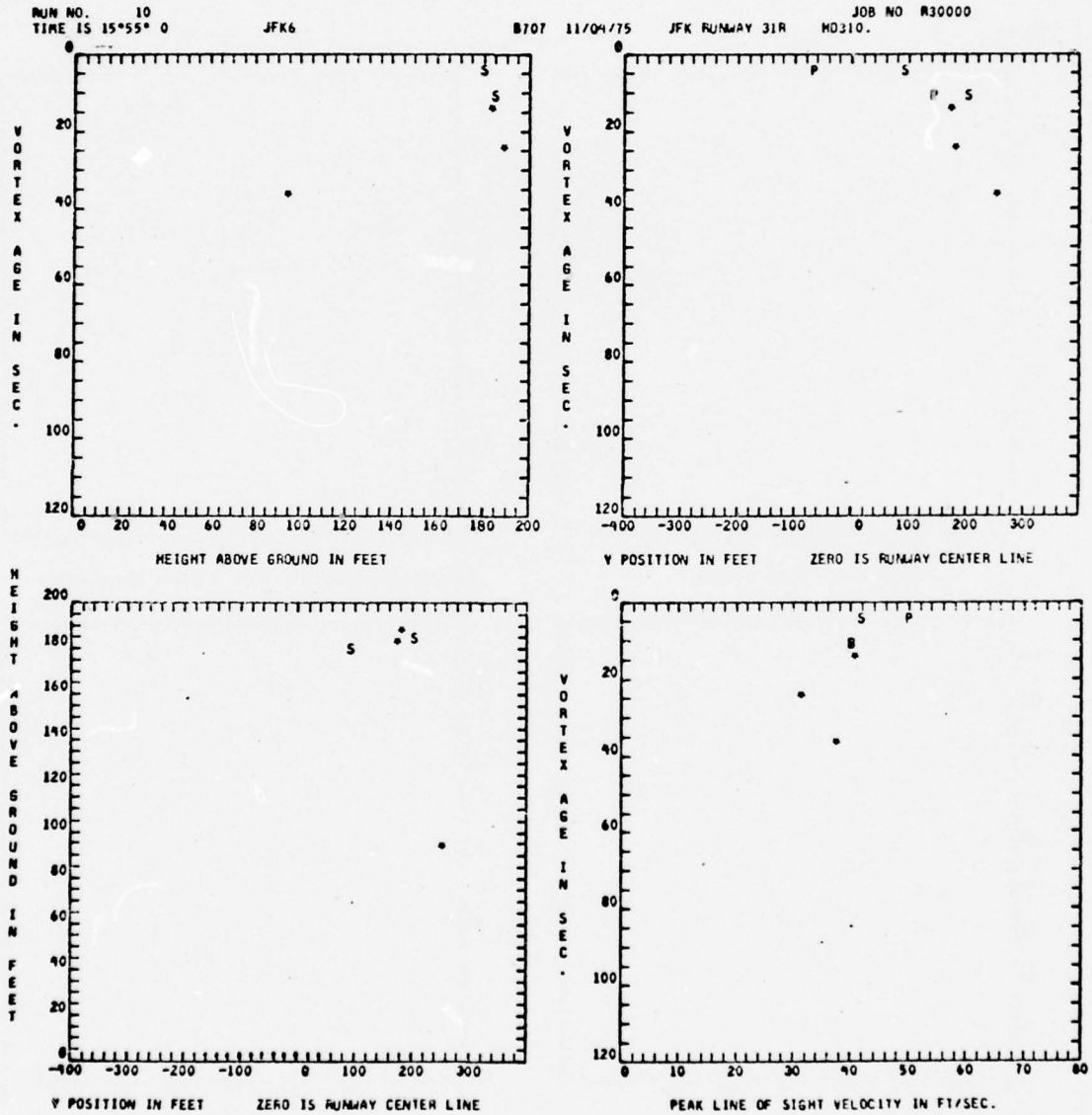
$END
```

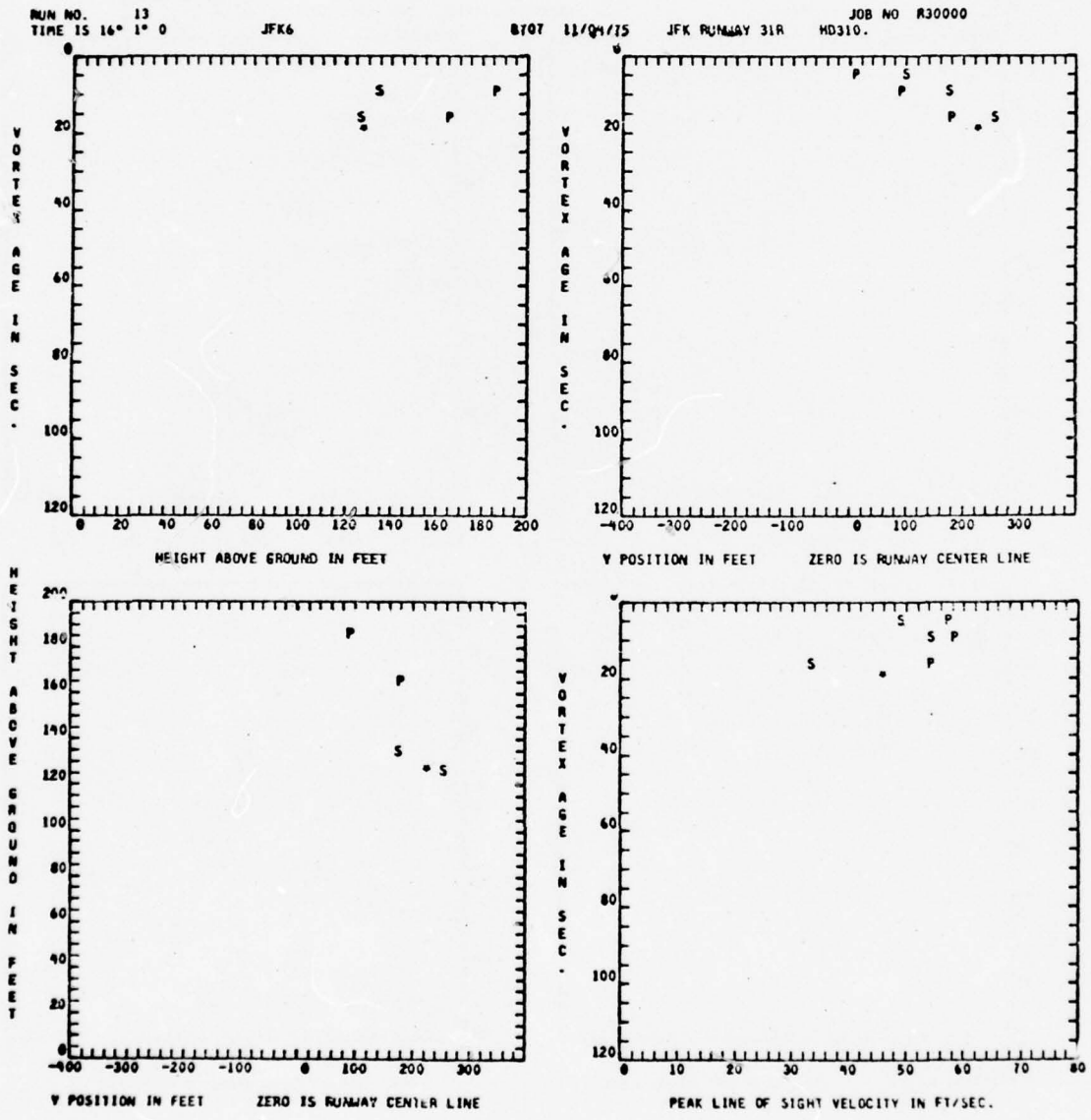

RUN NO. 2
TIME IS 15°34' 0
JFK6
B747 11/04/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

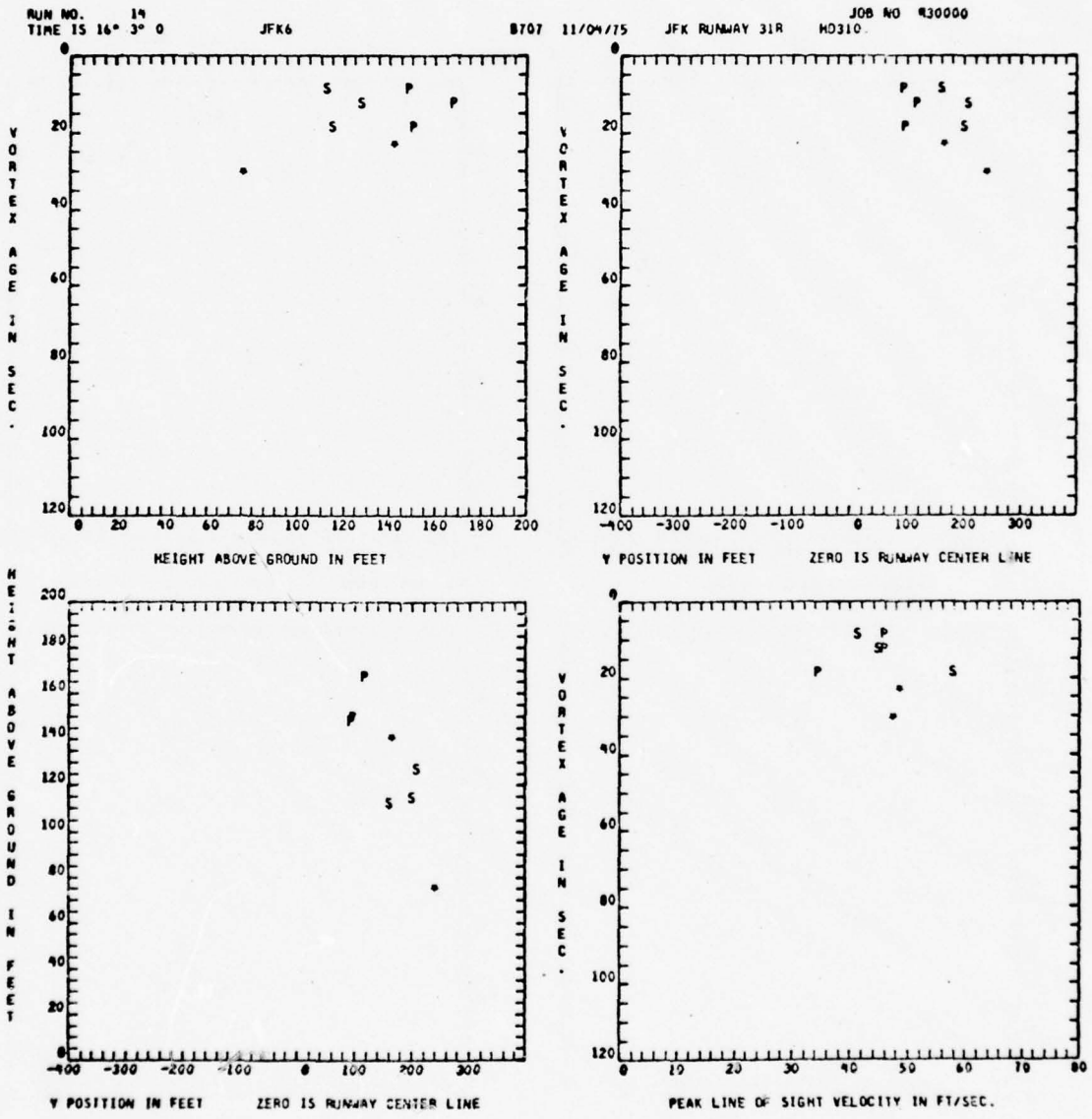

RUN NO. 6
TIME IS 15°48° 0
JFK6
B707
11/04/75
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

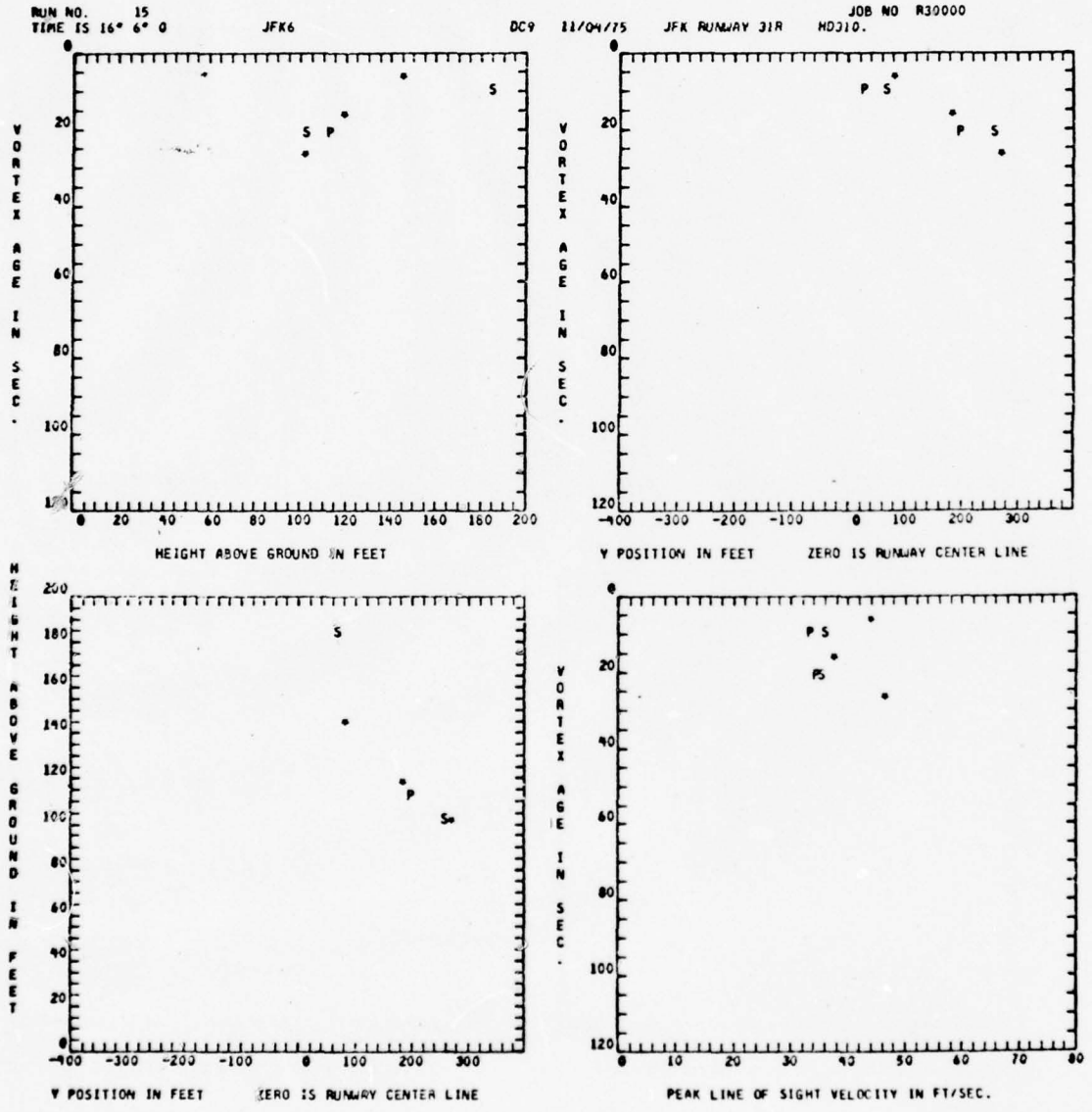

RUN NO. 8
TIME IS 15°52° 0
JFK6
B747 11/04/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

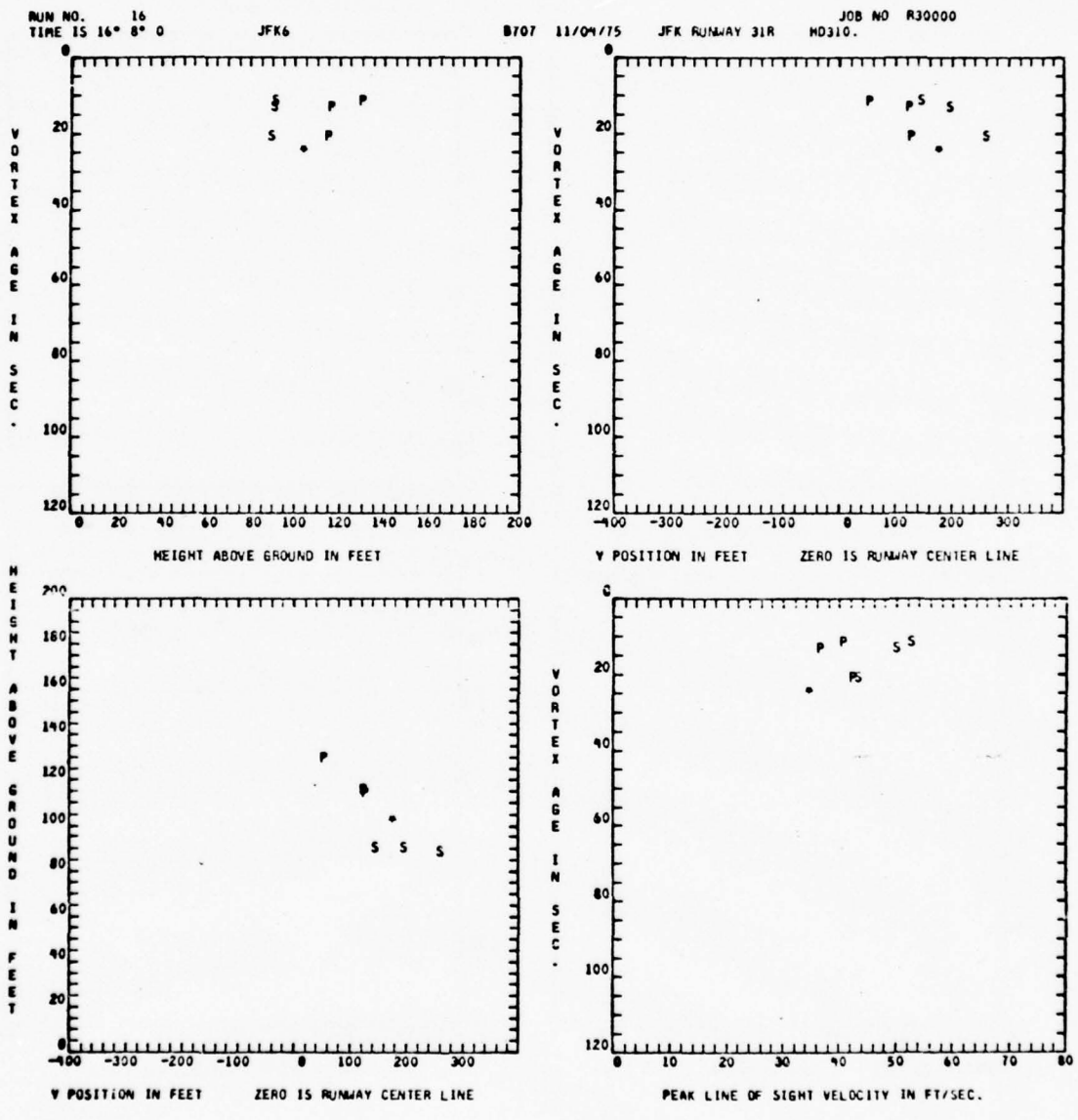

RUN NO. 9
TIME IS 15*54* 0
JFK6
B747 11/04/75
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

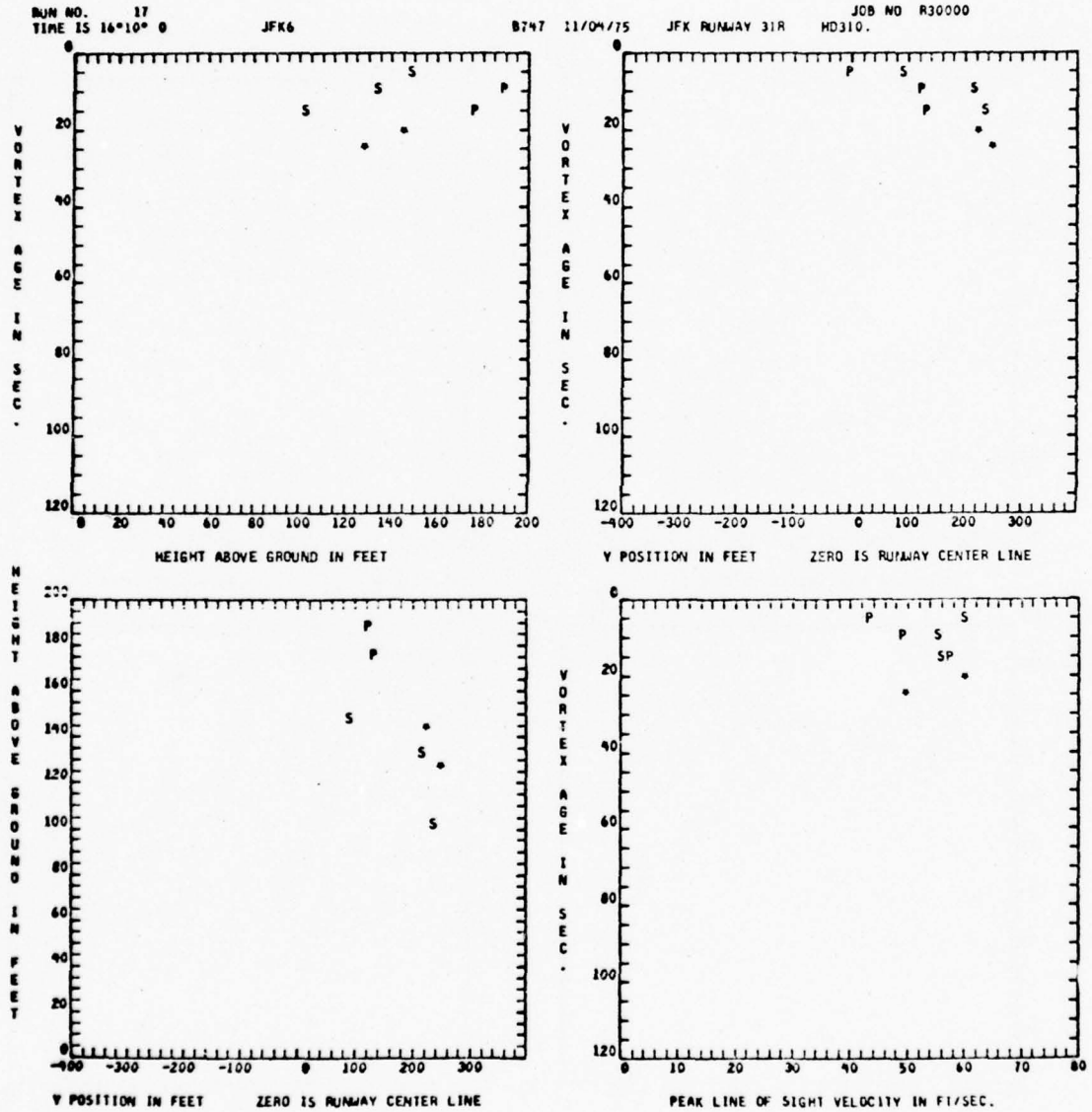

RUN NO. 10
TIME IS 15°55° 0
JFK6
B707 11/04/75 JFK RUNWAY 31R H0310.
JOB NO A30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 13
TIME IS 16° 1° 0
JFK6
B707 11/04/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 19
TIME IS 16° 3° 0
JFK6
B707 11/04/75 JFK RUNWAY 31R HD310
JOB NO 830000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 15
TIME IS 16° 6° 0
JFK6
DC9
11/04/75
JFK RUNWAY 31R
HDJ10.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

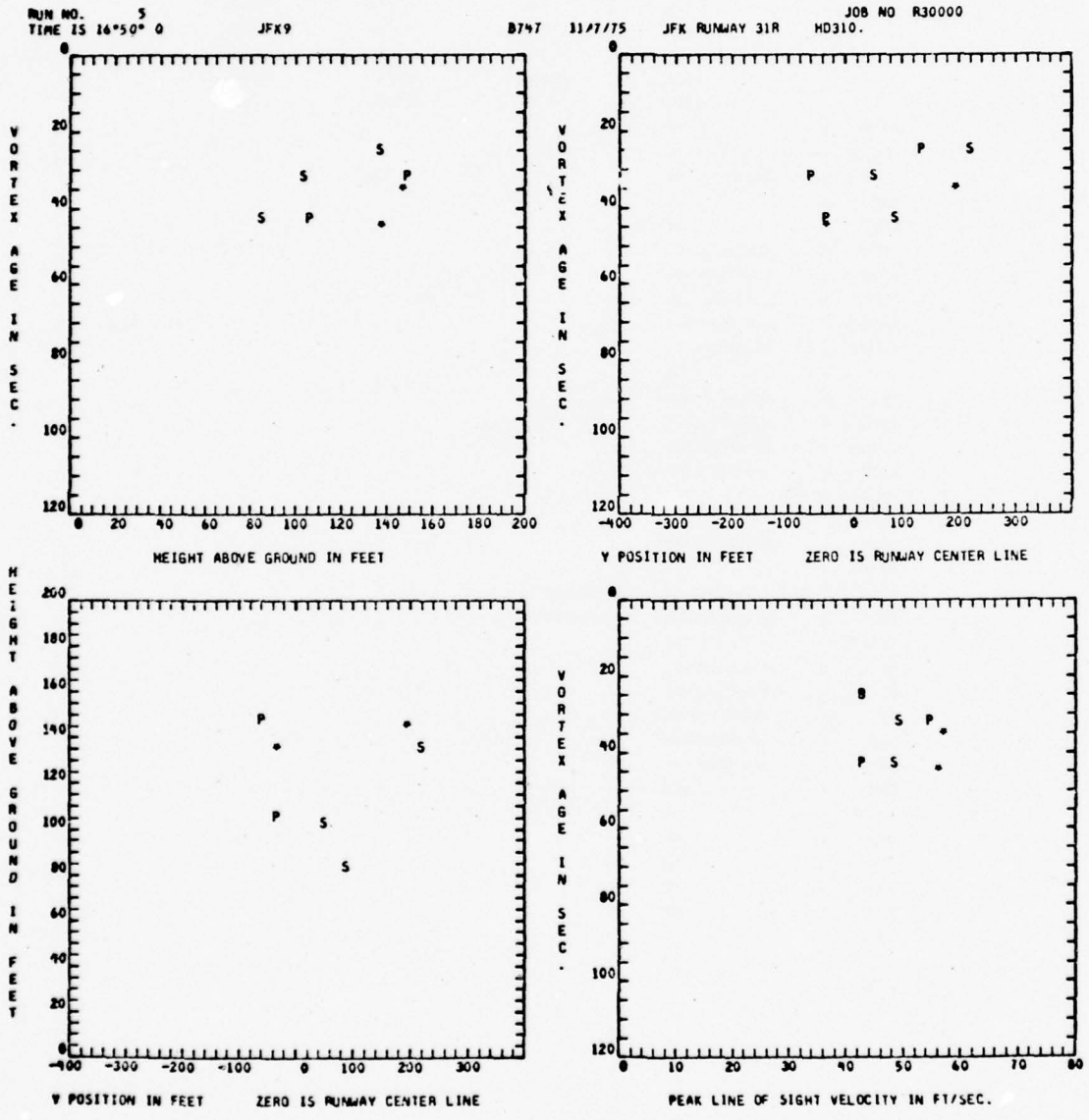

RUN NO. 16
TIME IS 16° 8° 0
JFK6
B707 11/04/75 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 17
TIME IS 16*10* 0
JFK6
B747 11/04/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

JFK9

```
$DATA
IGROUP  =              +0
ISFILE  =              +1,          +1,          +1000,        +1000,
                    +1000,       +1000,        +1000,        +1000,
                    +1000,       +1000,        +1000,        +1000,
                    +1000,       +1000,        +1000,        +1000,
                    +1000,       +1000,        +1000,        +1000
NRUN    =              +8
ZLASER  =    .70000000E+01
ZLASCN  =    .00000000E+00
INTVEL  =              +2
NPSUF   =              +4
APERCT  =    .10000000E+00
BPERCT  =    .10000000E+00
CPERCT  =    .50000000E+00
RPERCT  =    .31415927E+00
EPERCT  =    .15000000E+01
NOISEF  =              +0
ADJ1    =    .00000000E+00
ANGSW   =    .00000000E+00
WANGLE  =    .00000000E+00
WINDHP  =    .80000000E+03
LFLIP   =              +3
ISINE   =              +2
EDIT    =    .20000000E+00
MOVAVE  =              +5
YLIM    =    .00000000E+00,   .00000000E+00
ZLIM    =    .00000000E+00    .00000000E+00
ISCALE  =              +1
YR      =    .40000000E+03
YL      =   -.40000000E+03
ZT      =    .20000000E+03
TMAX    =    .12000000E+03
VMAX    =    .80000000E+02
NSPLT   =             +12
JPROF   =              +1
IMULT   =              +0
IOP1    =              +2
IOP2    =              +2
IOP3    =              +2
IOP4    =              +1

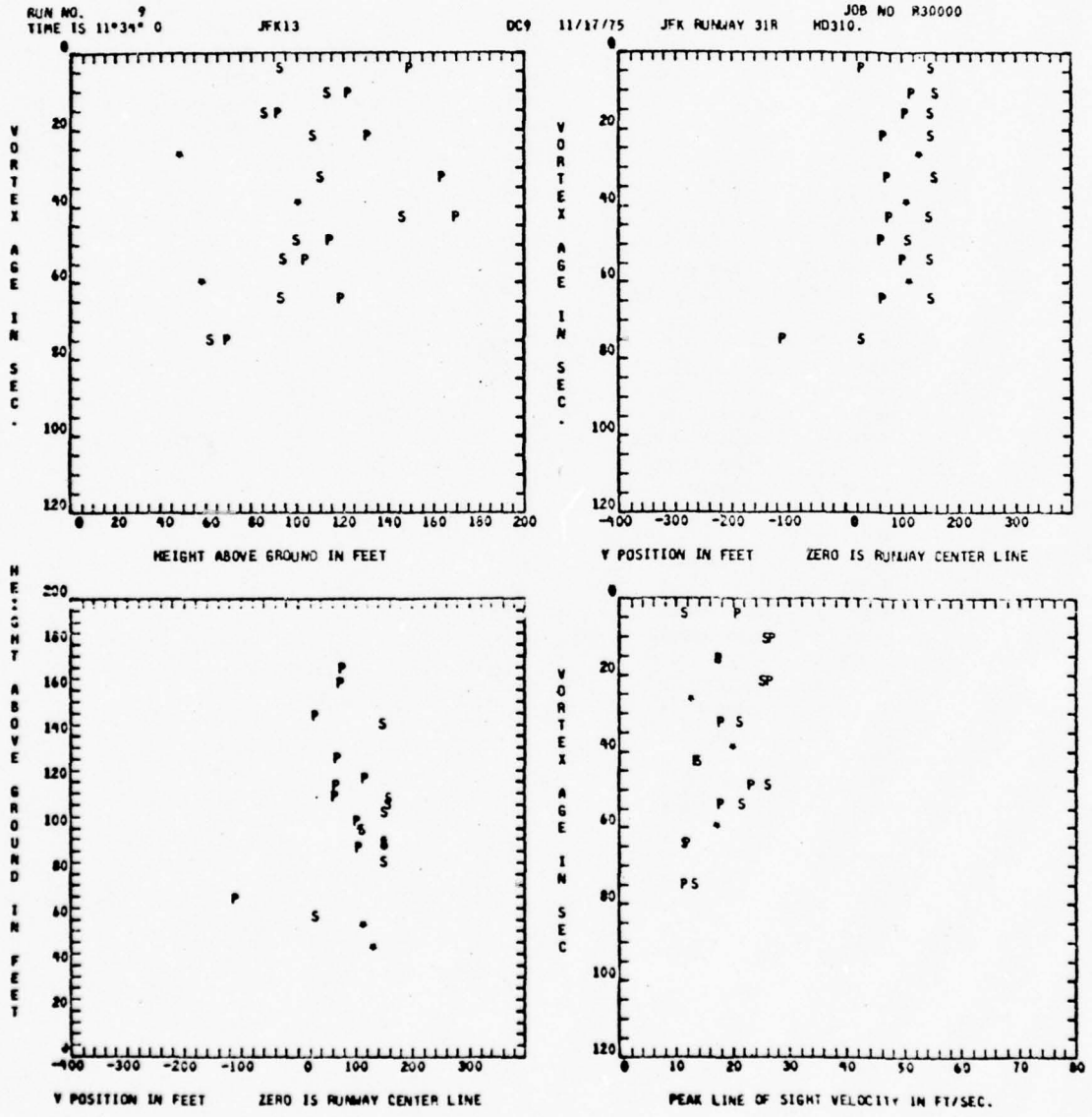
$END
```

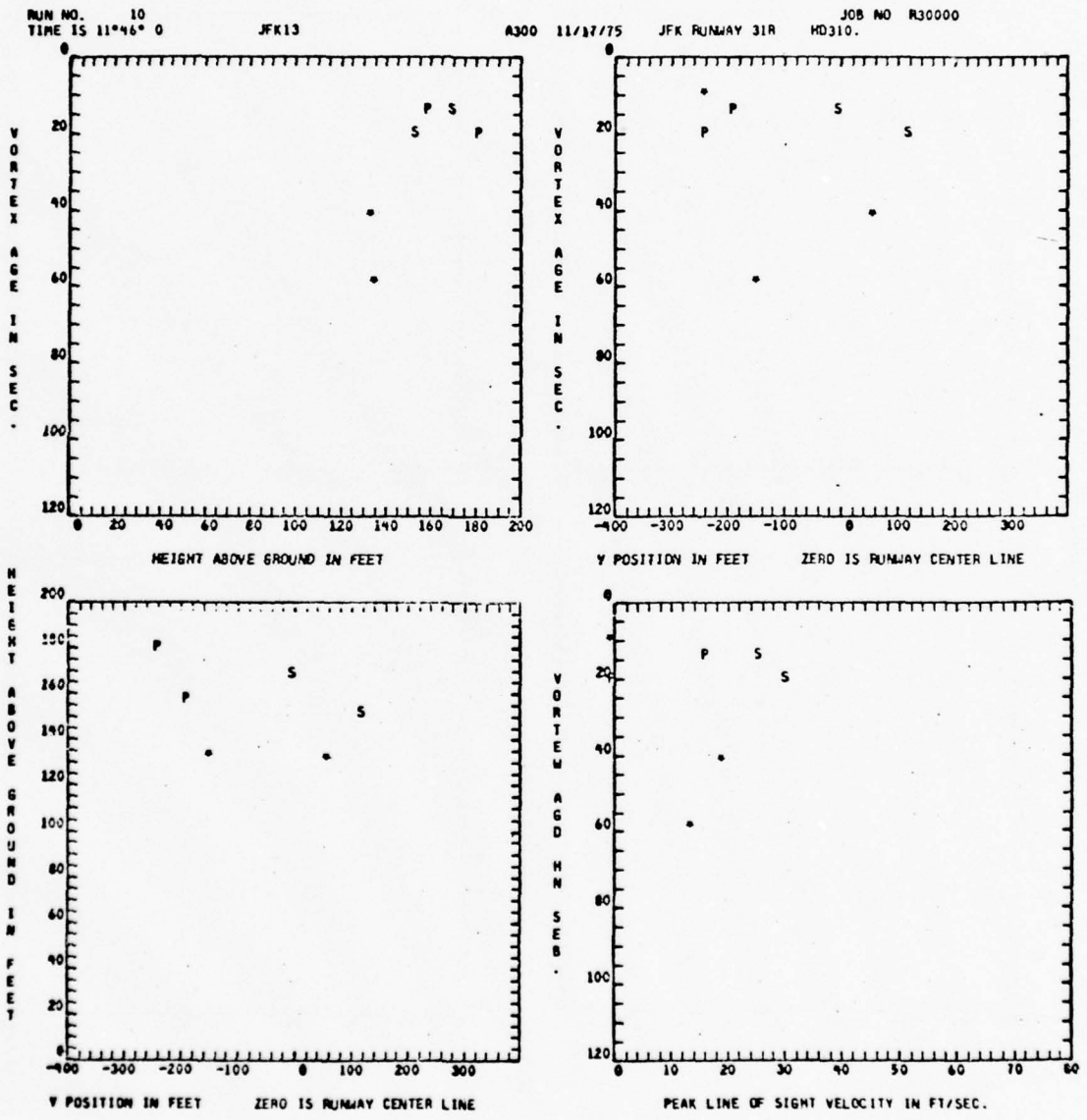

RUN NO. 5
TIME IS 16°50° 0
JFK9
B747
11/7/75
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

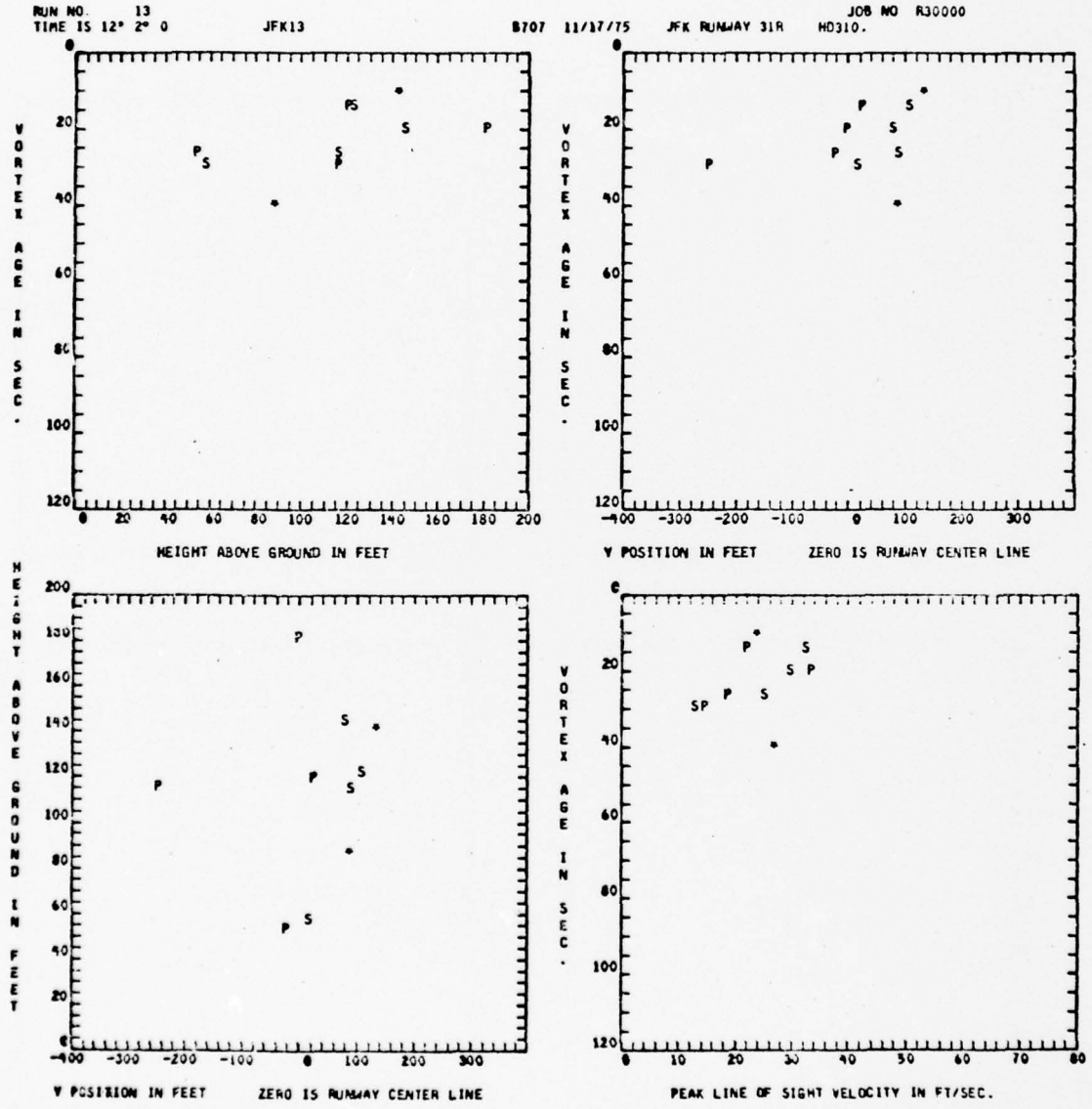
JFK13

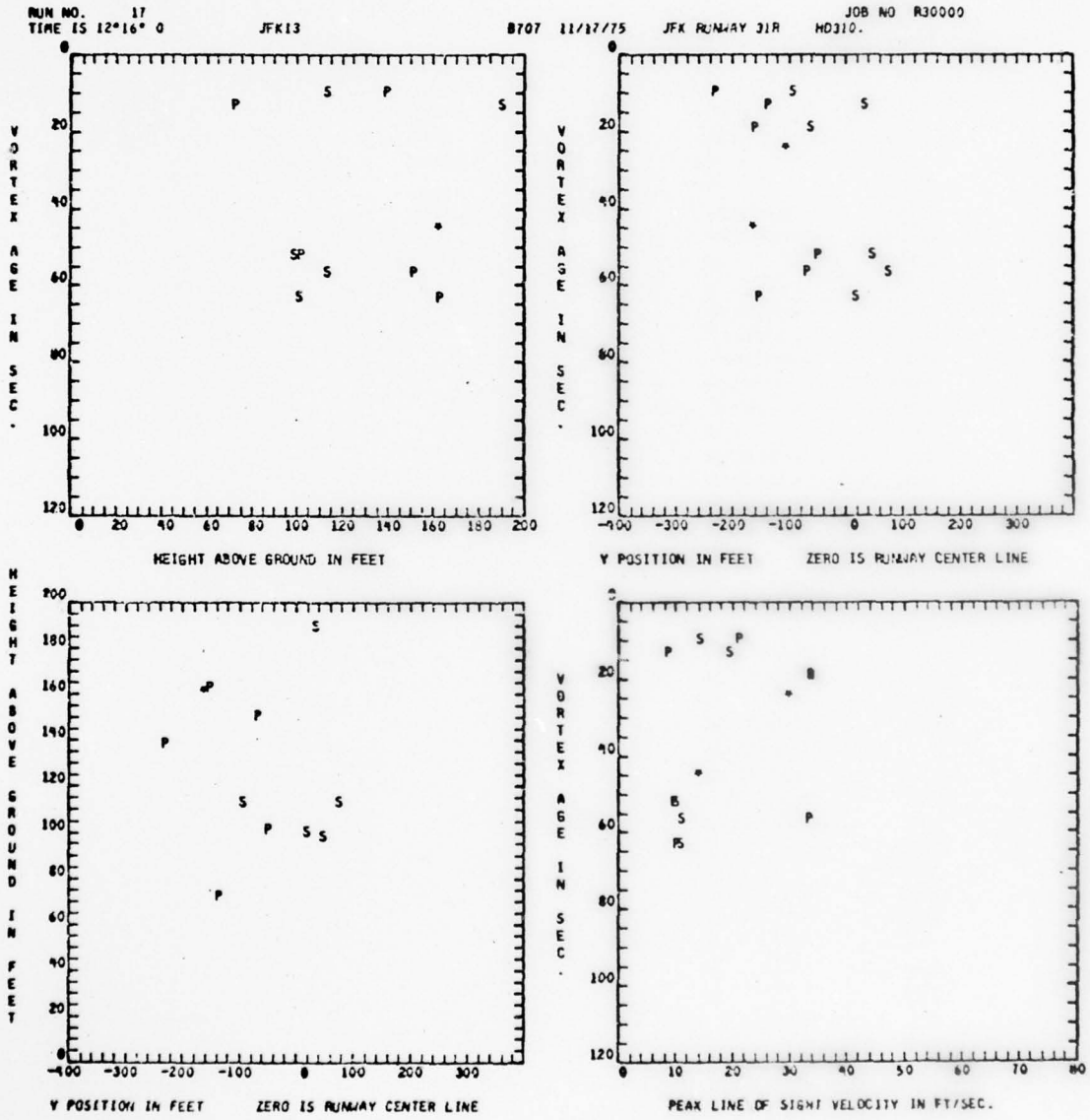
```
$DATA
IGROUP  =              +0
ISFILE  =              +1,            +7,            +11,            +11,
                    +1000,         +1000,         +1000,         +1000,
                    +1000,         +1000,         +1000,         +1000,
                    +1000,         +1000,         +1000,         +1000,
                    +1000,         +1000,         +1000,         +1000
NRUN    =             +17
ZLASER  =     .70000000E+01
ZLASCN  =     .00000000E+00
INTVEL  =              +2
NPSUF   =              +4
APERCT  =     .10000000E+00
BPERCT  =     .10000000E+00
CPERCT  =     .50000000E+00
RPERCT  =     .31415927E+00
EPERCT  =     .15000000E+01
NOISEF  =              +0
ADJ1    =     .00000000E+00
ANGSW   =     .00000000E+00
WANGLE  =     .00000000E+00
WINDHP  =     .80000000E+03
LFLIP   =              +3
ISINE   =              +2
EDIT    =     .20000000E+00
MOVAVE  =              +5
YLIM    =     .00000000E+00,   .00000000E+00
ZLIM    =     .00000000E+00,   .00000000E+00
ISCALE  =              +1
YR      =     .40000000E+03
YL      =    -.40000000E+03
ZT      =     .20000000E+03
TMAX    =     .12000000E+03
VMAX    =     .80000000E+02
NSPLT   =             +12
JPROF   =              +1
IMULT   =              +0
IOP1    =              +2
IOP2    =              +2
IOP3    =              +2
IOP4    =              +1

$END
```


RUN NO. 9
TIME IS 11°34' 0
JFK13
DC9
11/17/75
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

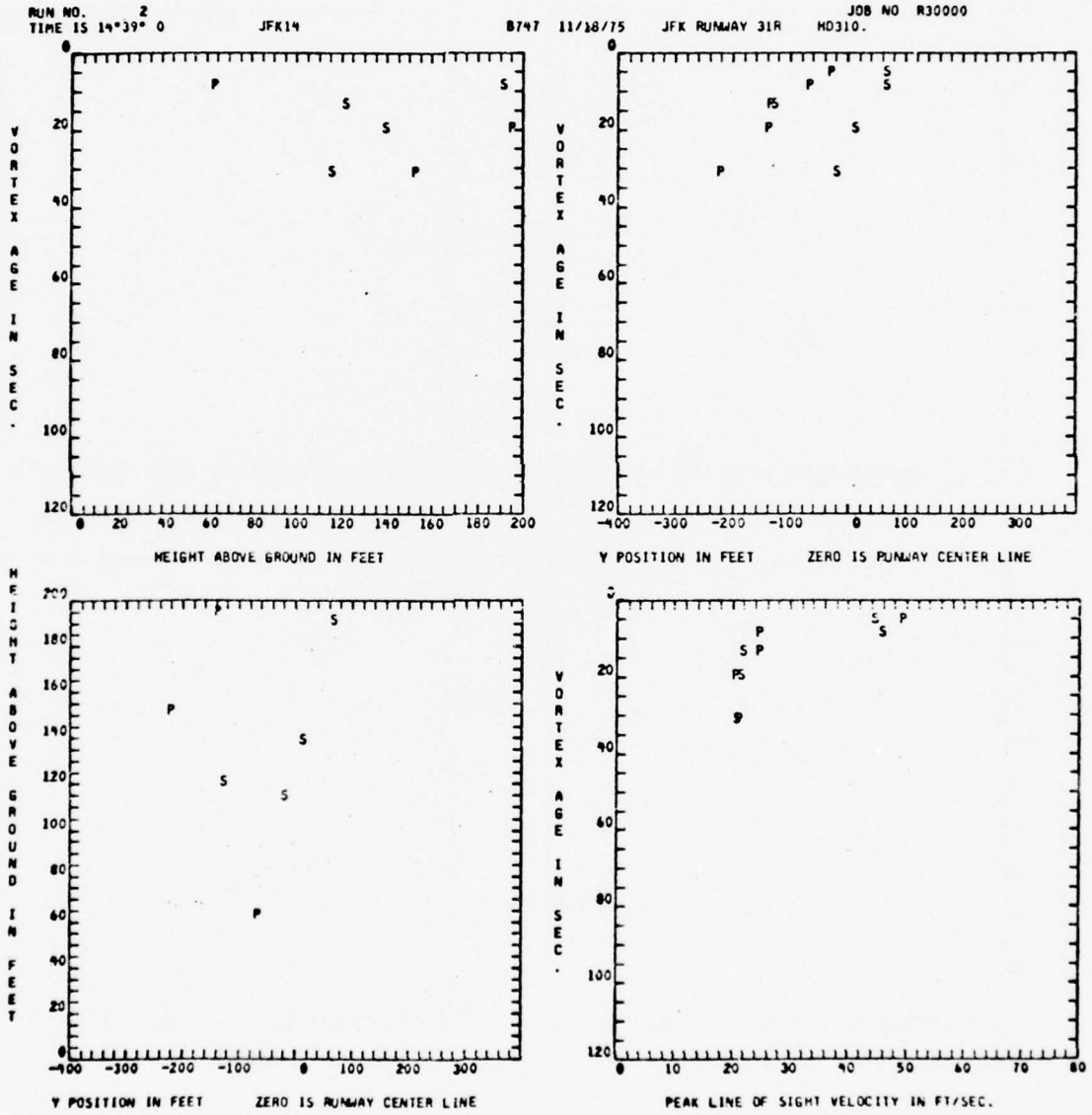

RUN NO. 10
TIME IS 11°46° 0
JFK13
A300 11/17/75
JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

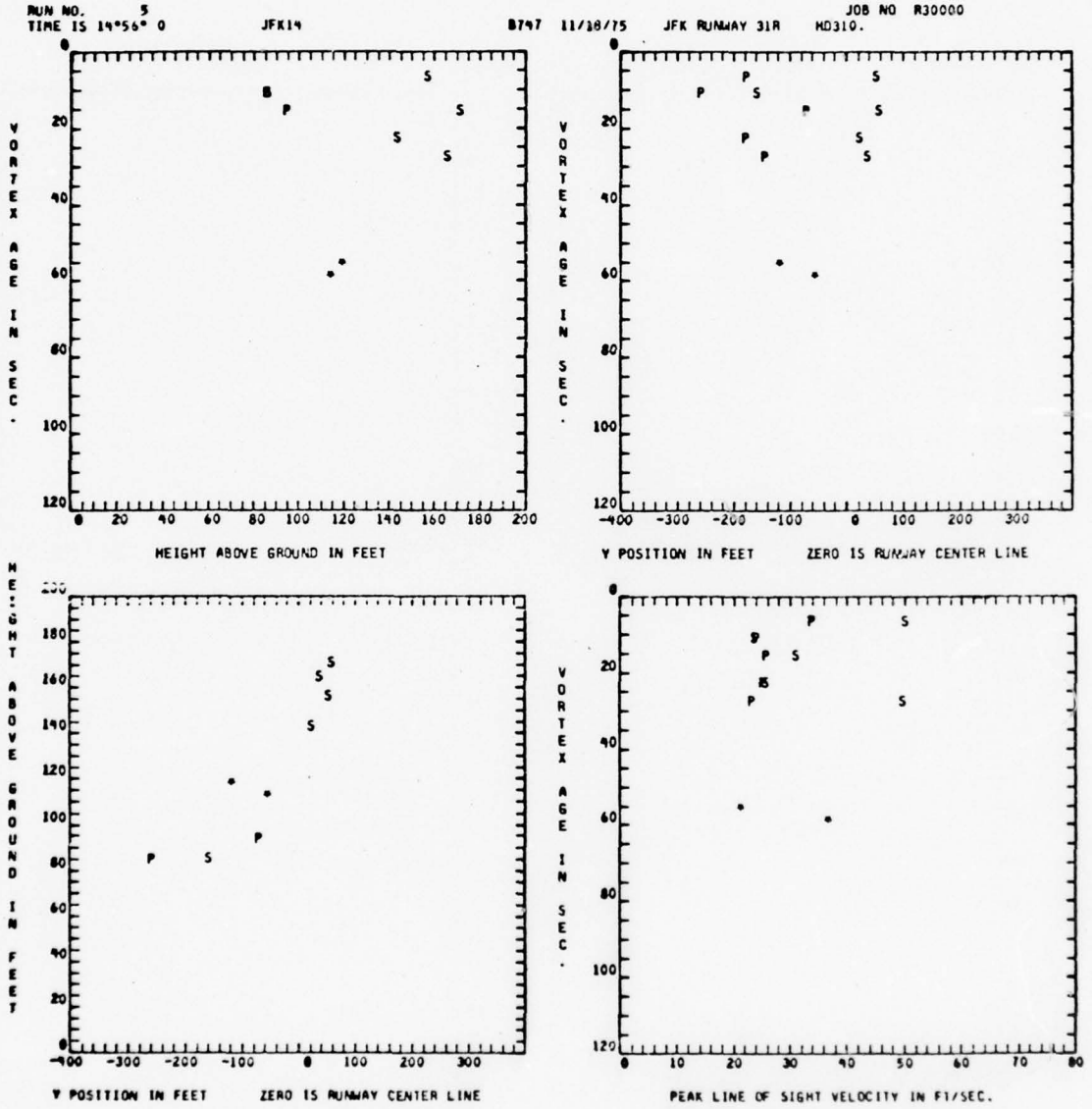

RUN NO. 13
TIME IS 12° 2° 0
JFK13
B707 11/17/75
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

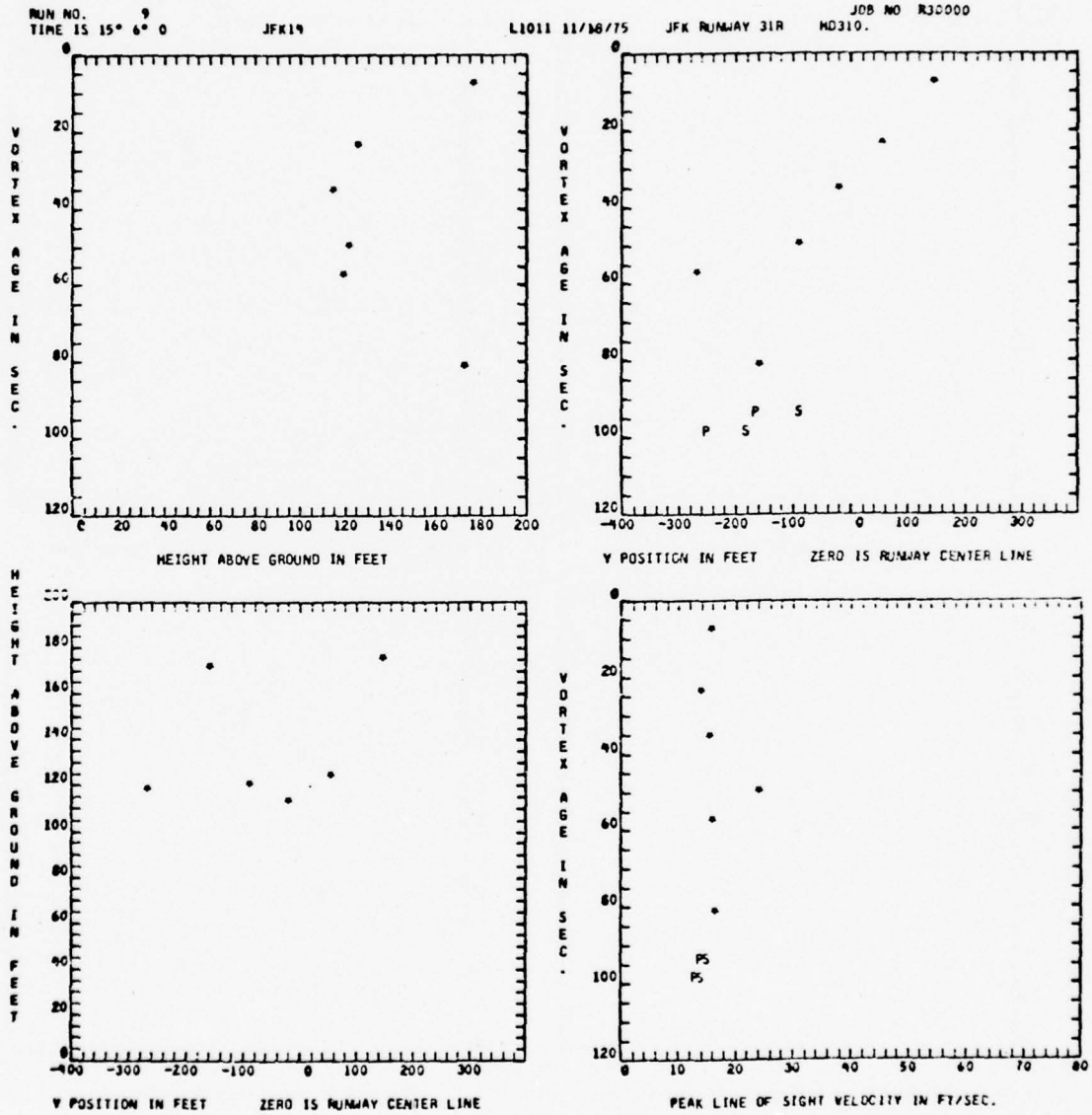

RUN NO. 17
TIME IS 12°16' 0
JFK13
B707 11/17/75 JFK RUNWAY 31R HDG10.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

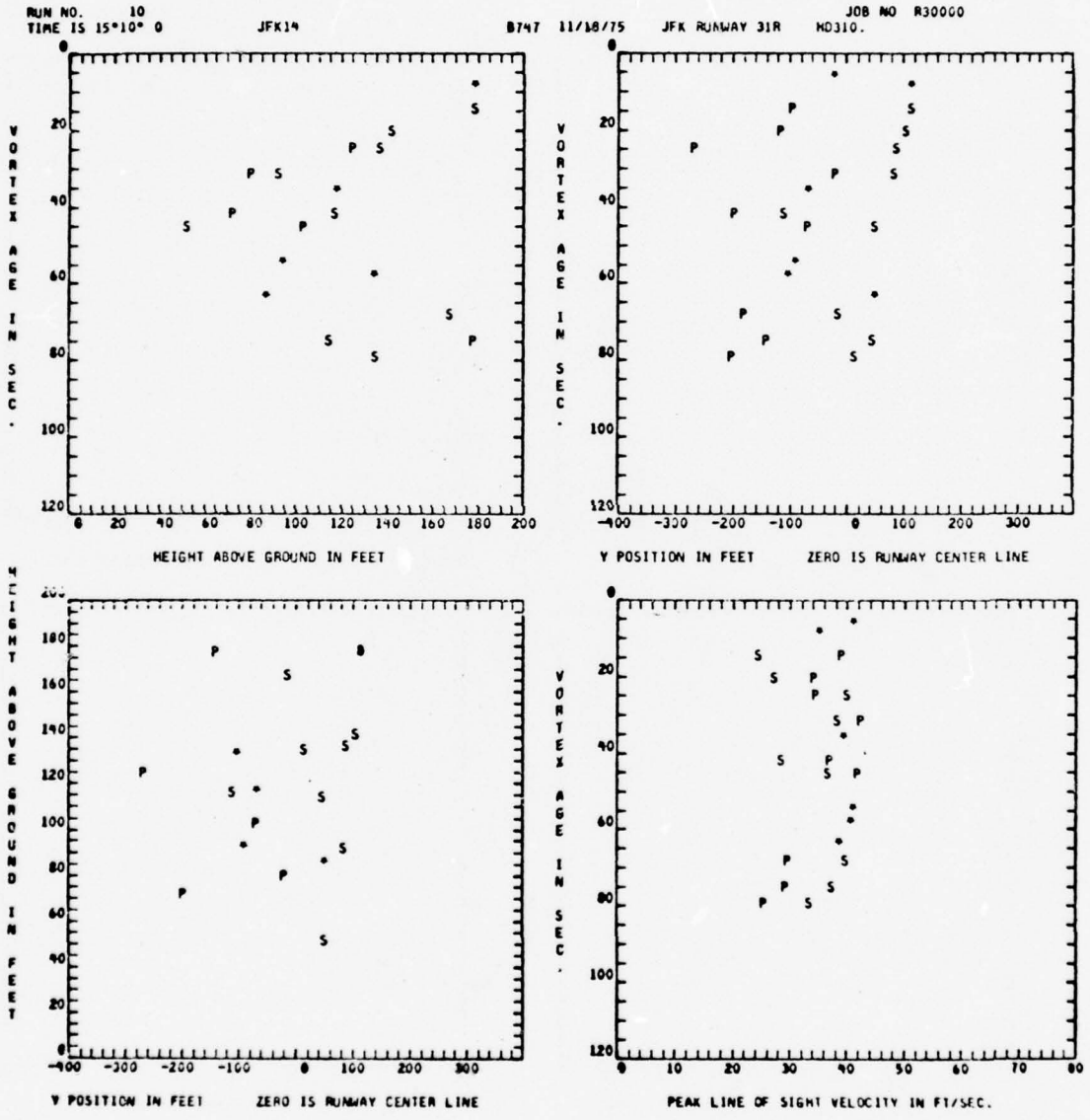
```
                        JFK14
$DATA
IGROUP  =                +0
ISFILE  =                +1,             +1,             +3,             +3,
                         +24,            +24,            +41,            +41,
                         +55,            +55,           +1000,          +1000,
                        +1000,          +1000,          +1000,          +1000,
                        +1000,          +1000,          +1000,          +1000
NRUN    =                +56
ZLASER  =      .70000000E+01
ZLASCN  =      .00000000E+00
INTVEL  =                +2
NPSUF   =                +4
APERCT  =      .10000000E+00
BPERCT  =      .10000000E+00
CPERCT  =      .50000000E+00
RPERCT  =      .31415927E+00
EPERCT  =      .15000000E+01
NOISEF  =                +0
ADJ1    =      .00000000E+00
ANGSW   =      .00000000E+00
WANGLE  =      .00000000E+00
WINDHP  =      .80000000E+03
LFLIP   =                +3
ISINE   =                +2
EDIT    =      .20000000E+00
MOVAVE  =                +5
YLIM    =      .00000000E+00,   .00000000E+00
ZLIM    =      .00000000E+00,   .00000000E+00
ISCALE  =                +1
YR      =      .40000000E+03
YL      =     -.40000000E+03
ZT      =      .20000000E+03
TMAX    =      .12000000E+03
VMAX    =      .80000000E+02
NSPLT   =               +12
JPROF   =                +1
IMULT   =                +0
IOP1    =                +2
IOP2    =                +2
IOP3    =                +2
IOP4    =                +1

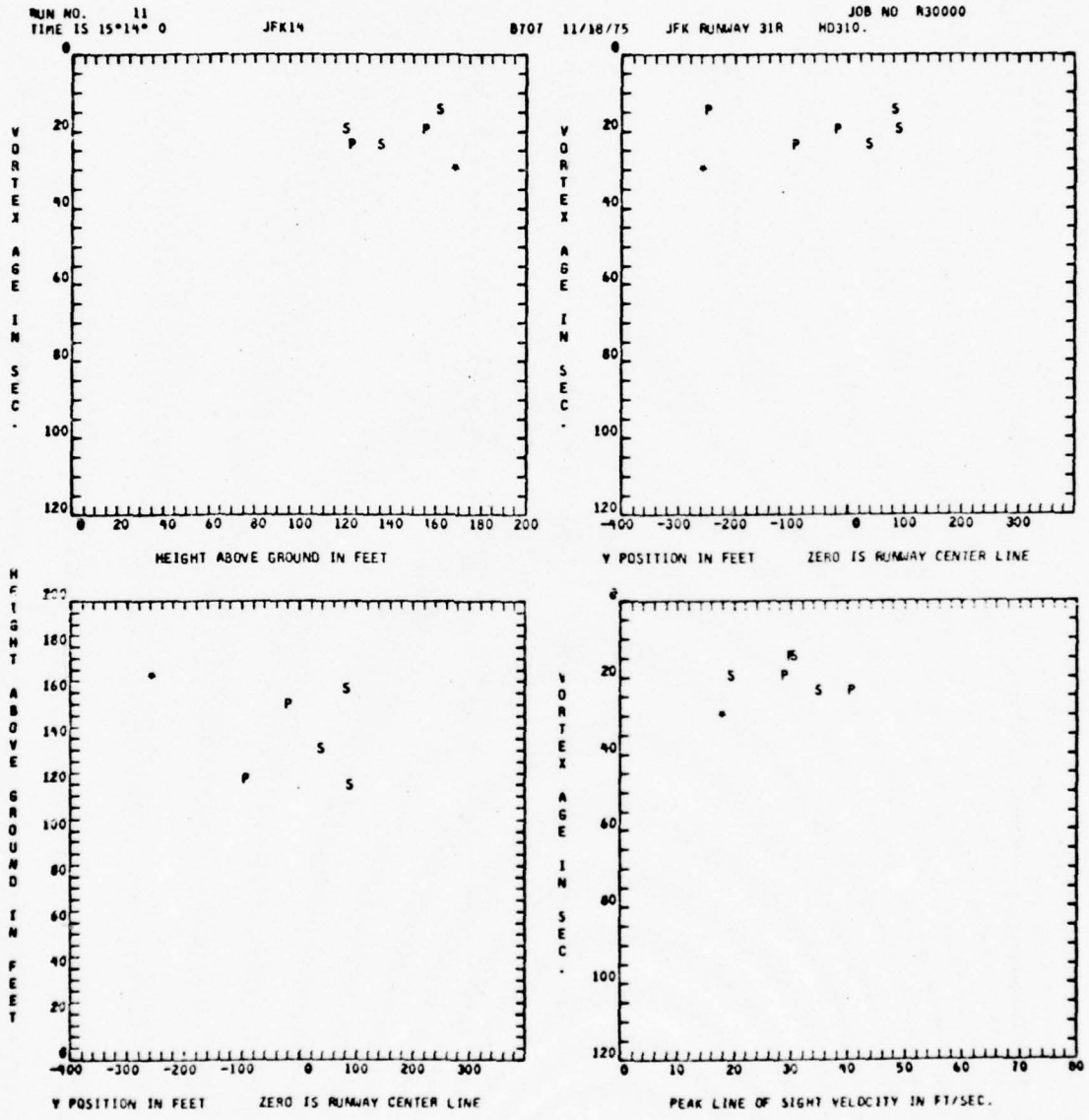
$END
```

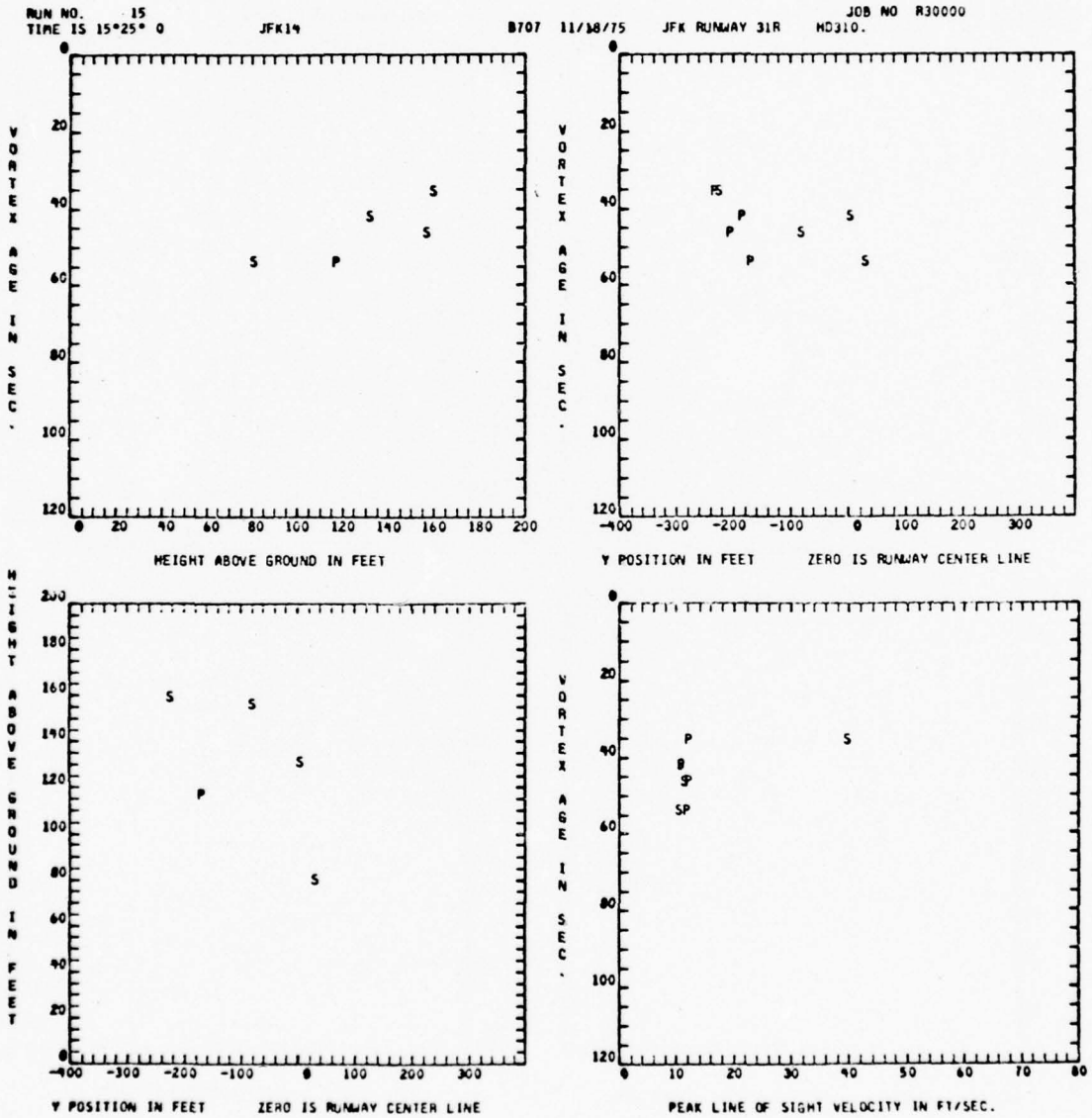

RUN NO. 2
TIME IS 14°39° 0
JFK14
B747 11/18/75 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
WEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

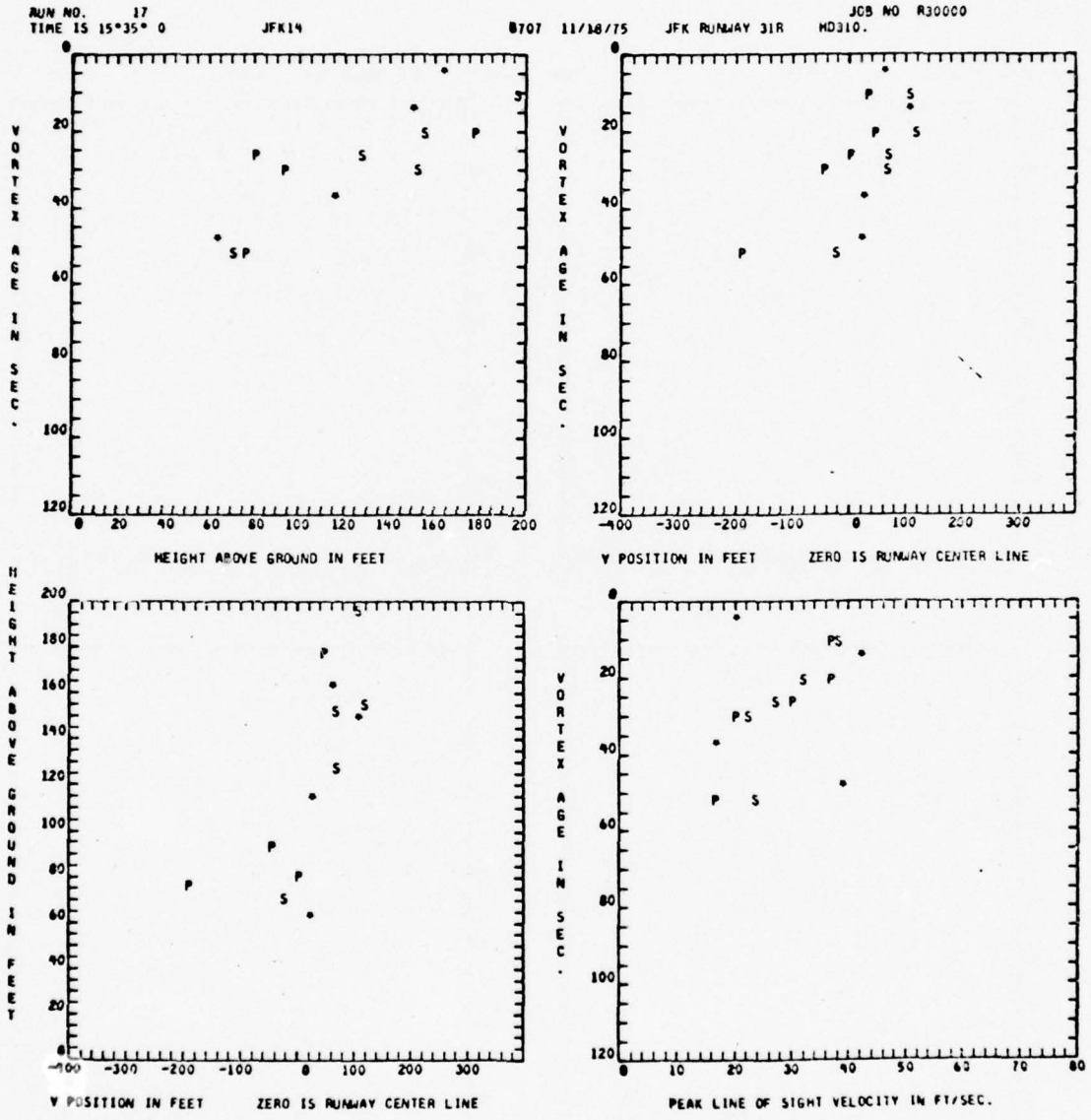

RUN NO. 5
TIME IS 14°56° 0
JFK14
B747 11/18/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

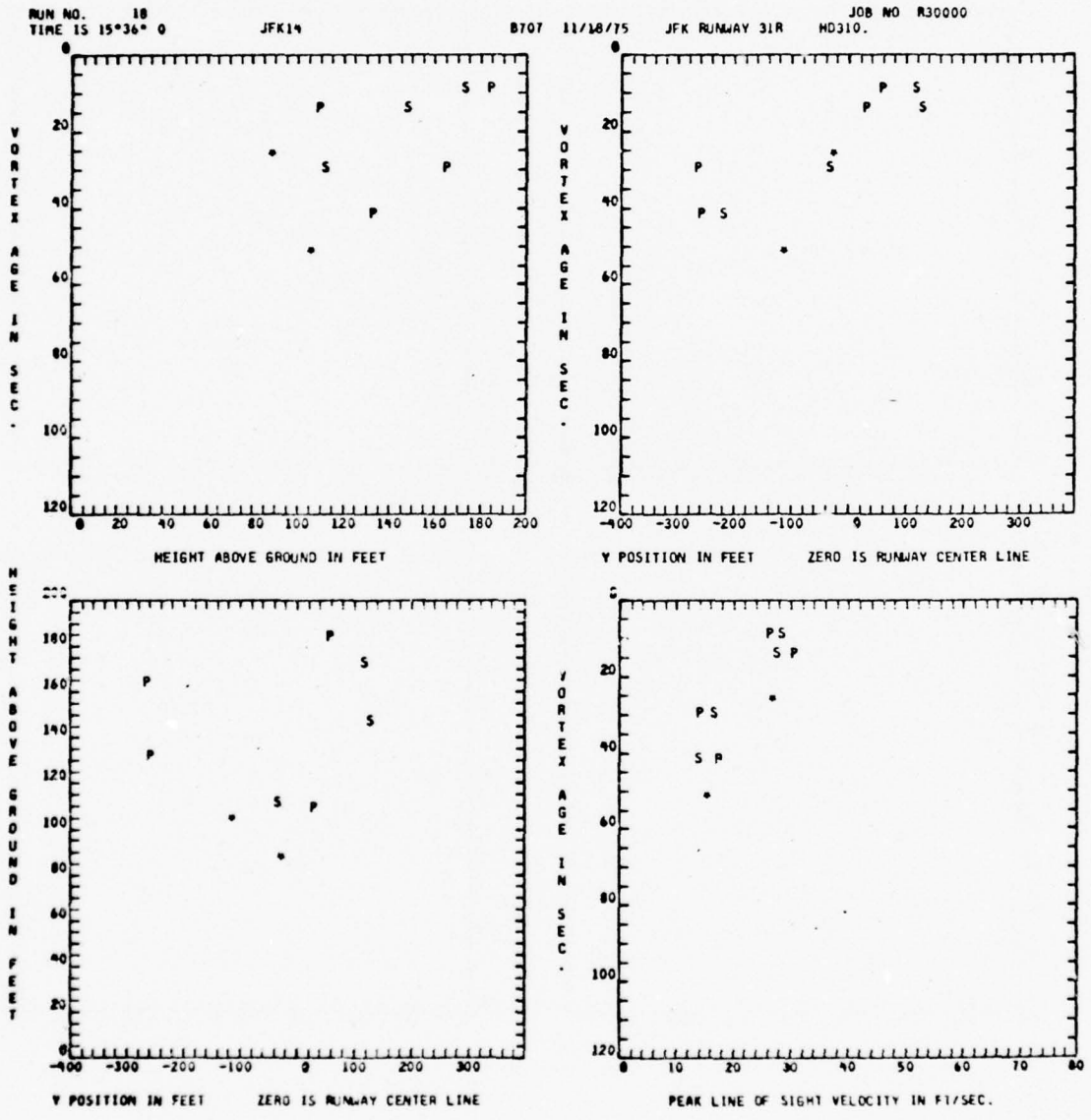

RUN NO. 9
TIME IS 15° 6° 0
JFK19
L1011 11/18/75 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

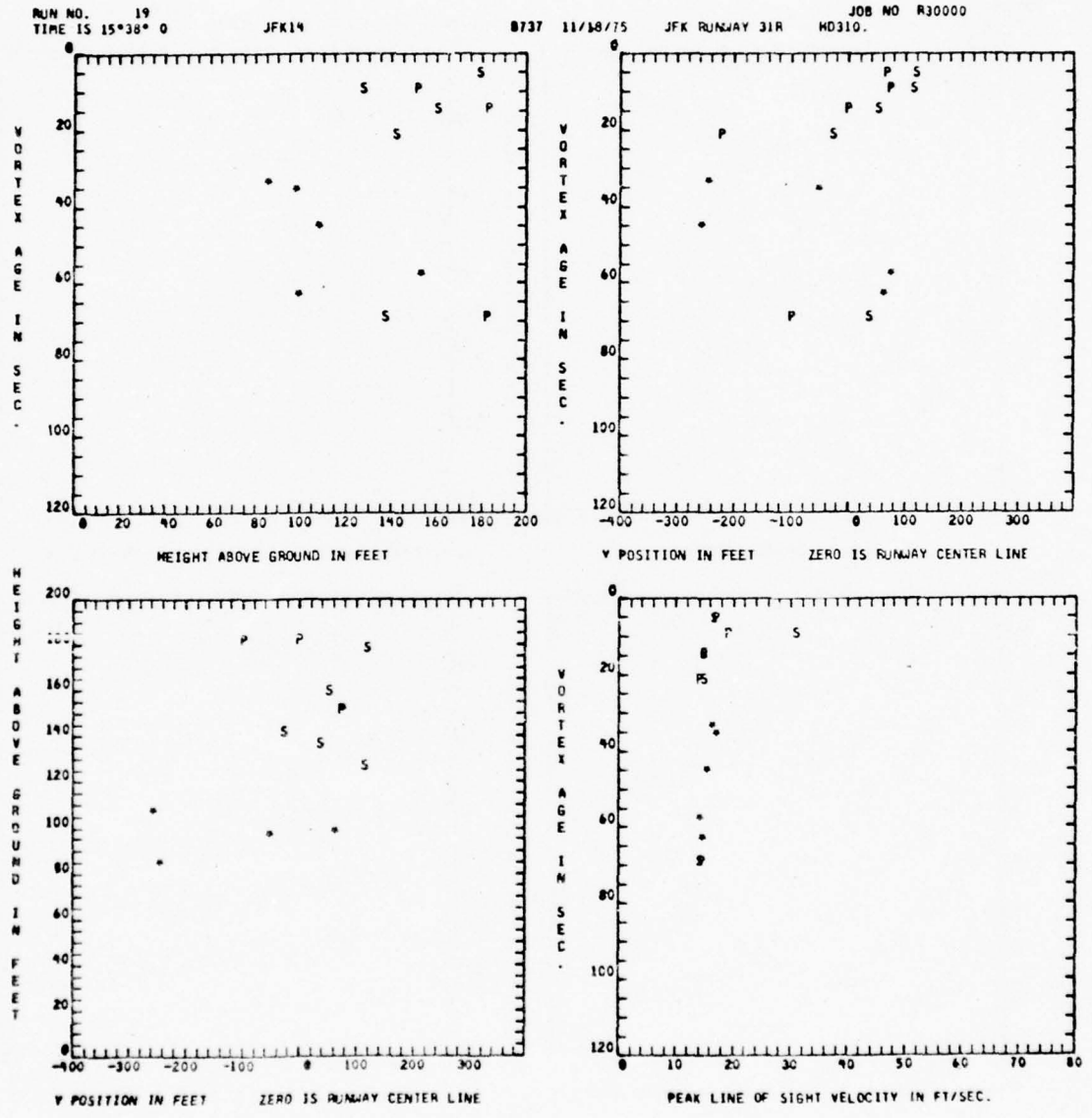

RUN NO. 10
TIME IS 15°10° 0
JFK14
B747 11/18/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

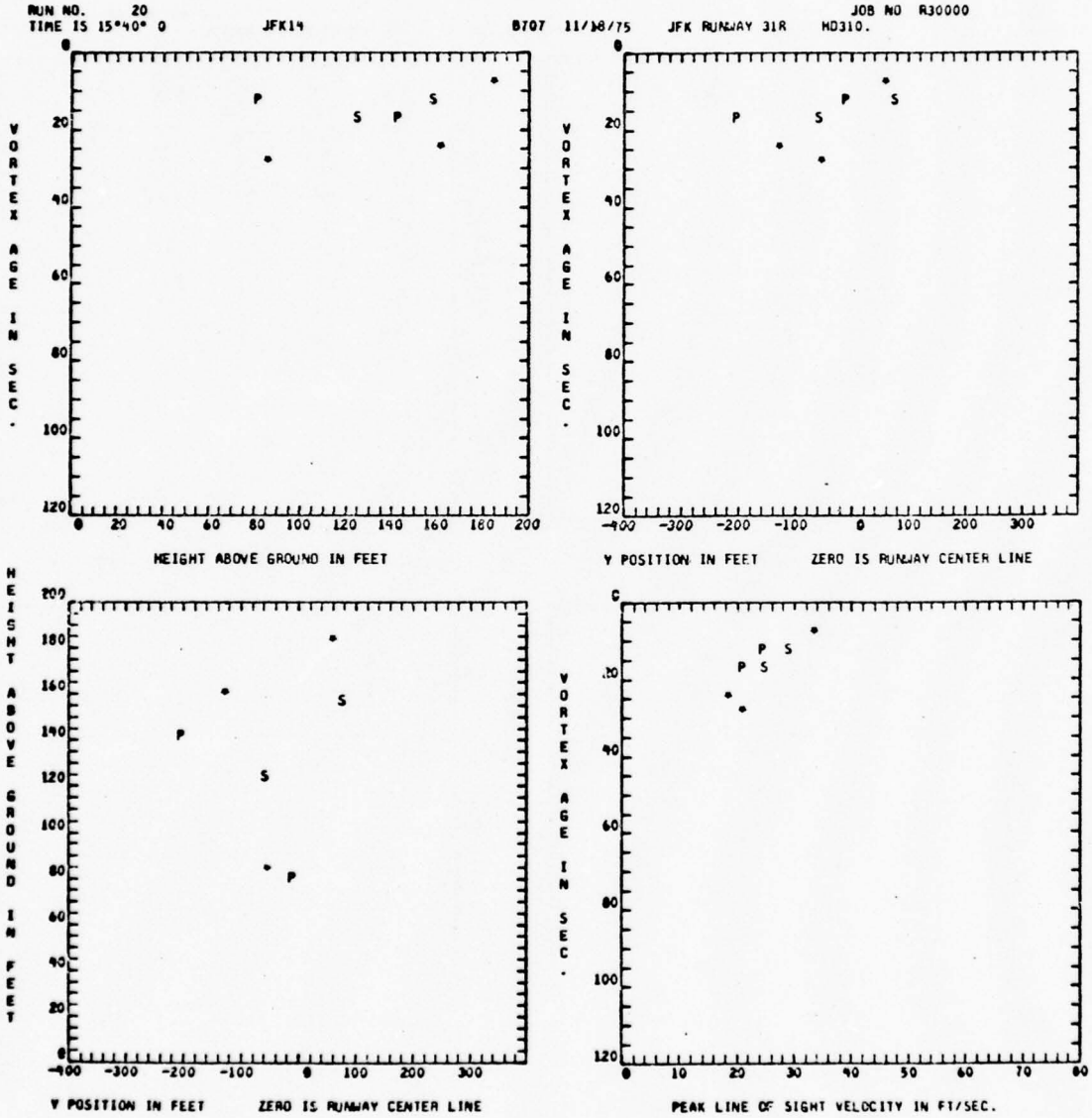

RUN NO. 11
TIME IS 15°14° 0
JFK14
B707 11/18/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

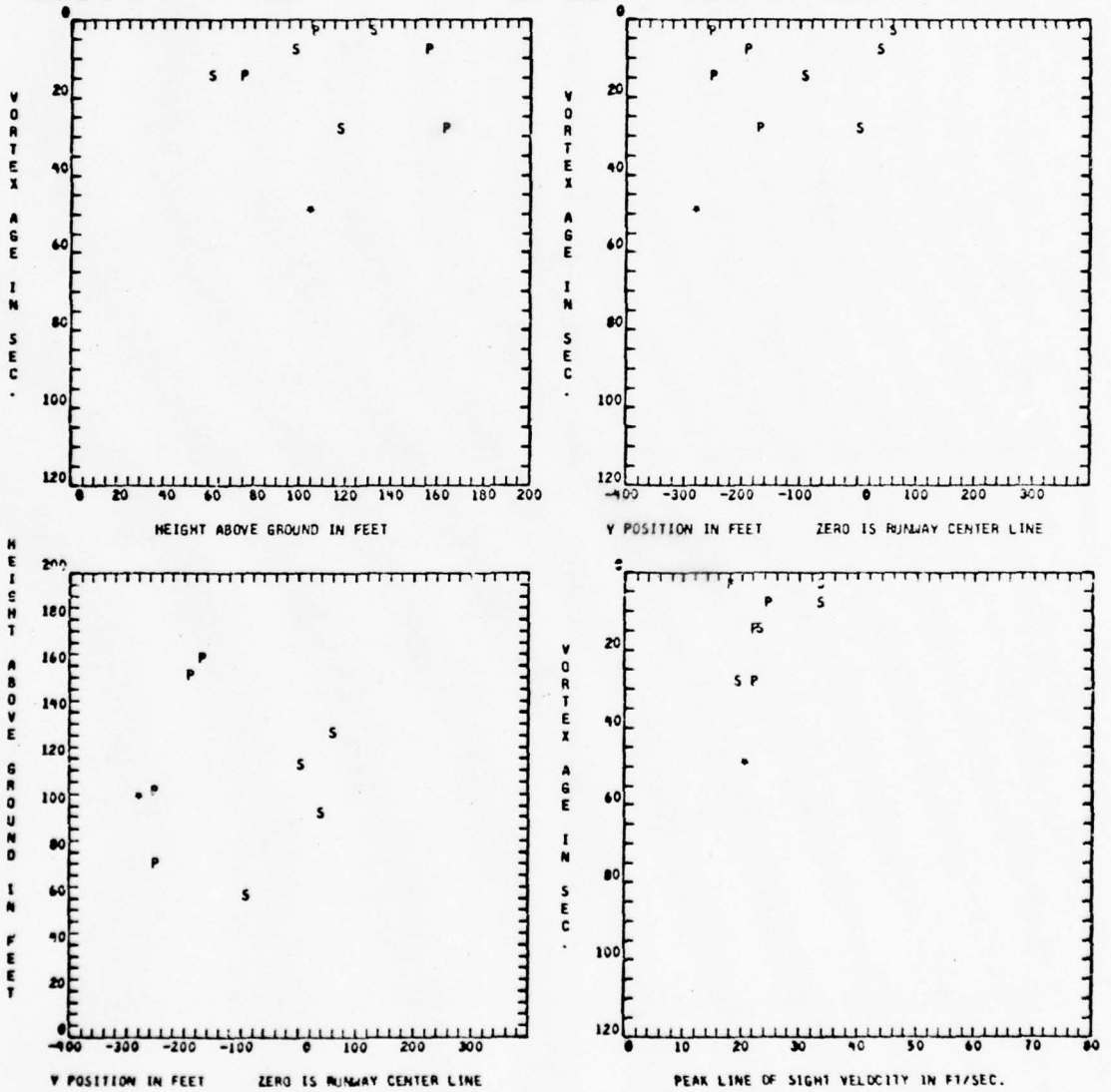

RUN NO. 15
TIME IS 15°25° 0
JFK14
B707 11/18/75
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

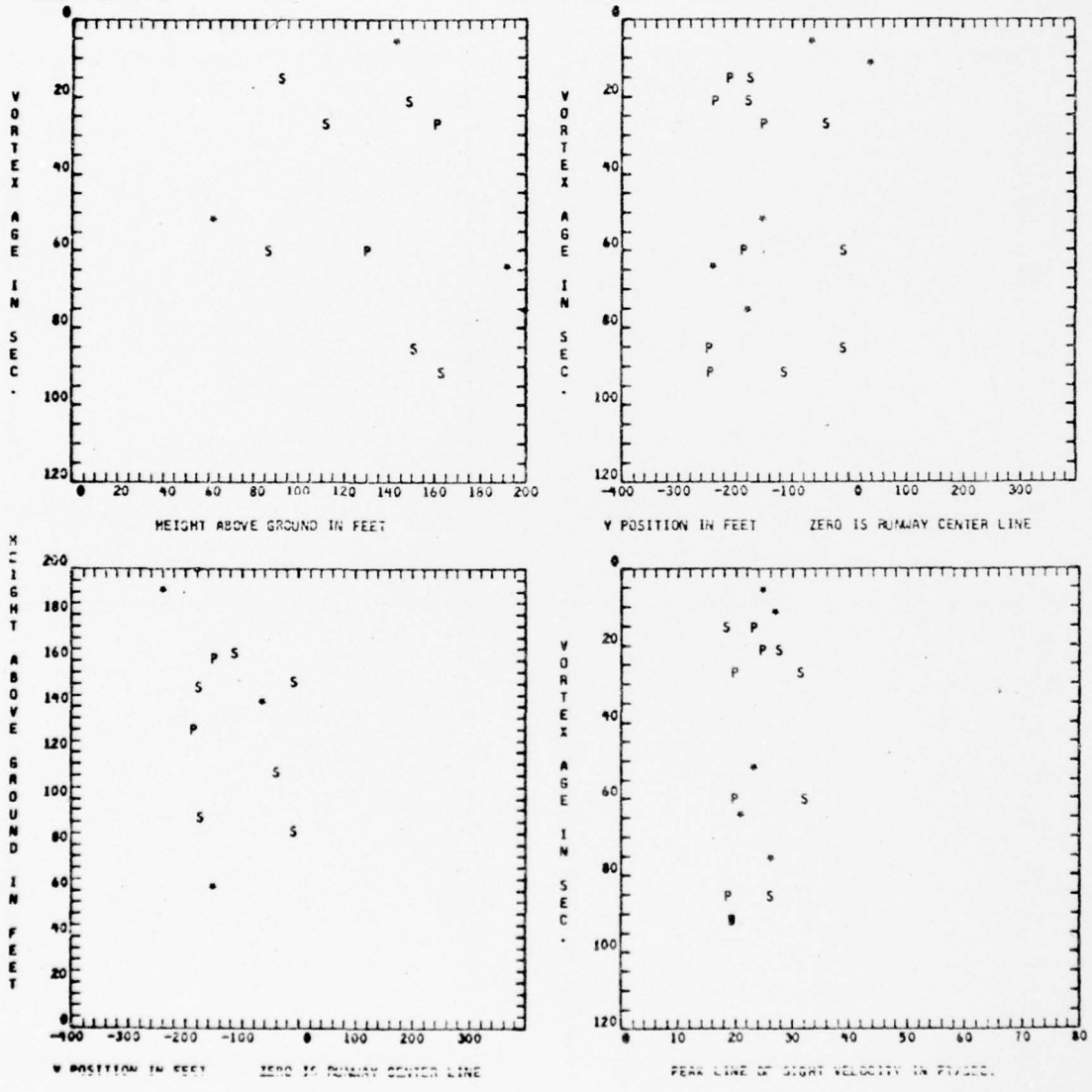

RUN NO. 17
TIME IS 15°35° 0
JFK14
B707 11/18/75 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

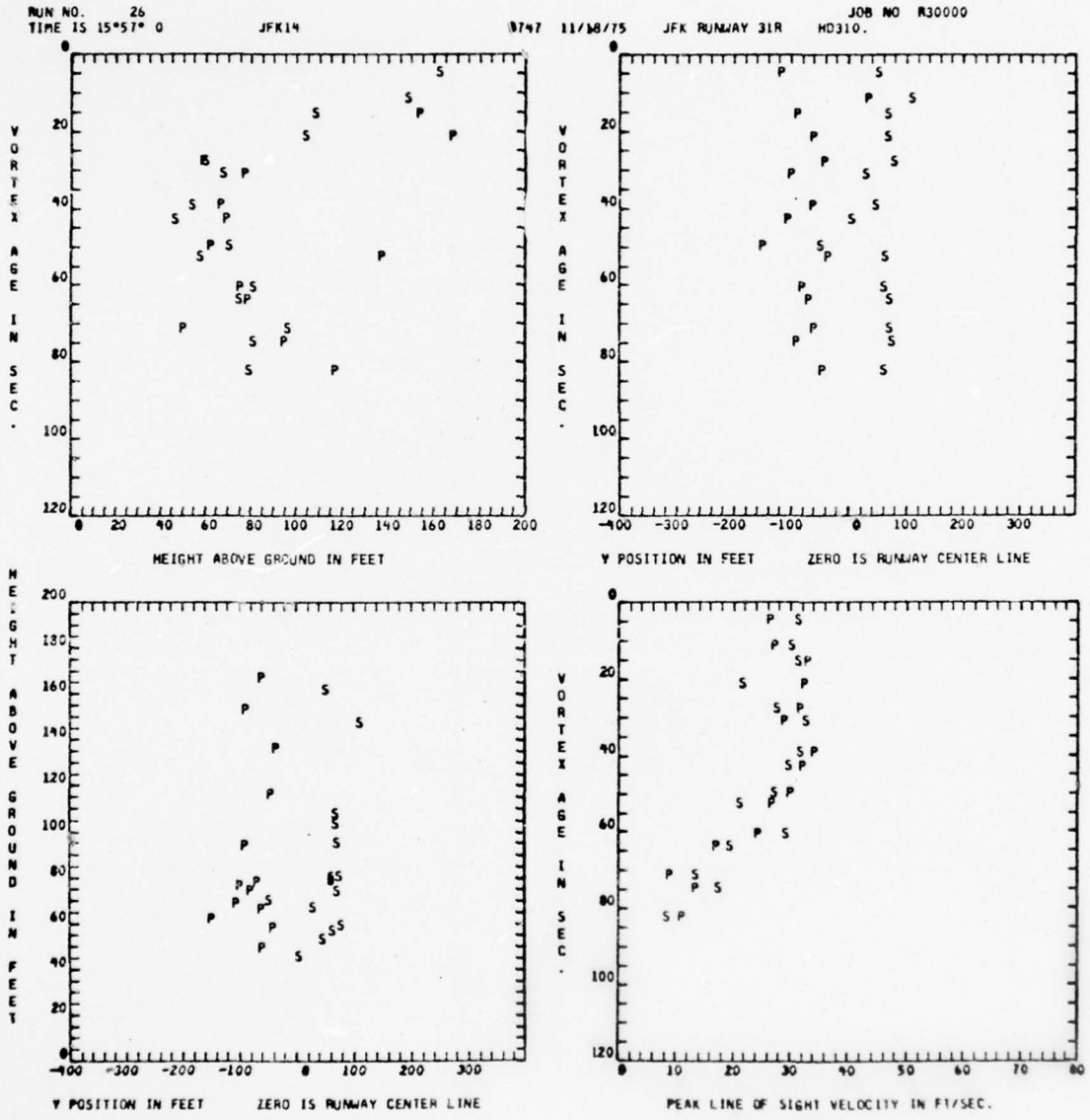

RUN NO. 18
TIME IS 15°36' 0
JFK14
B707 11/18/75 JFK RUNWAY 31R HDG10.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

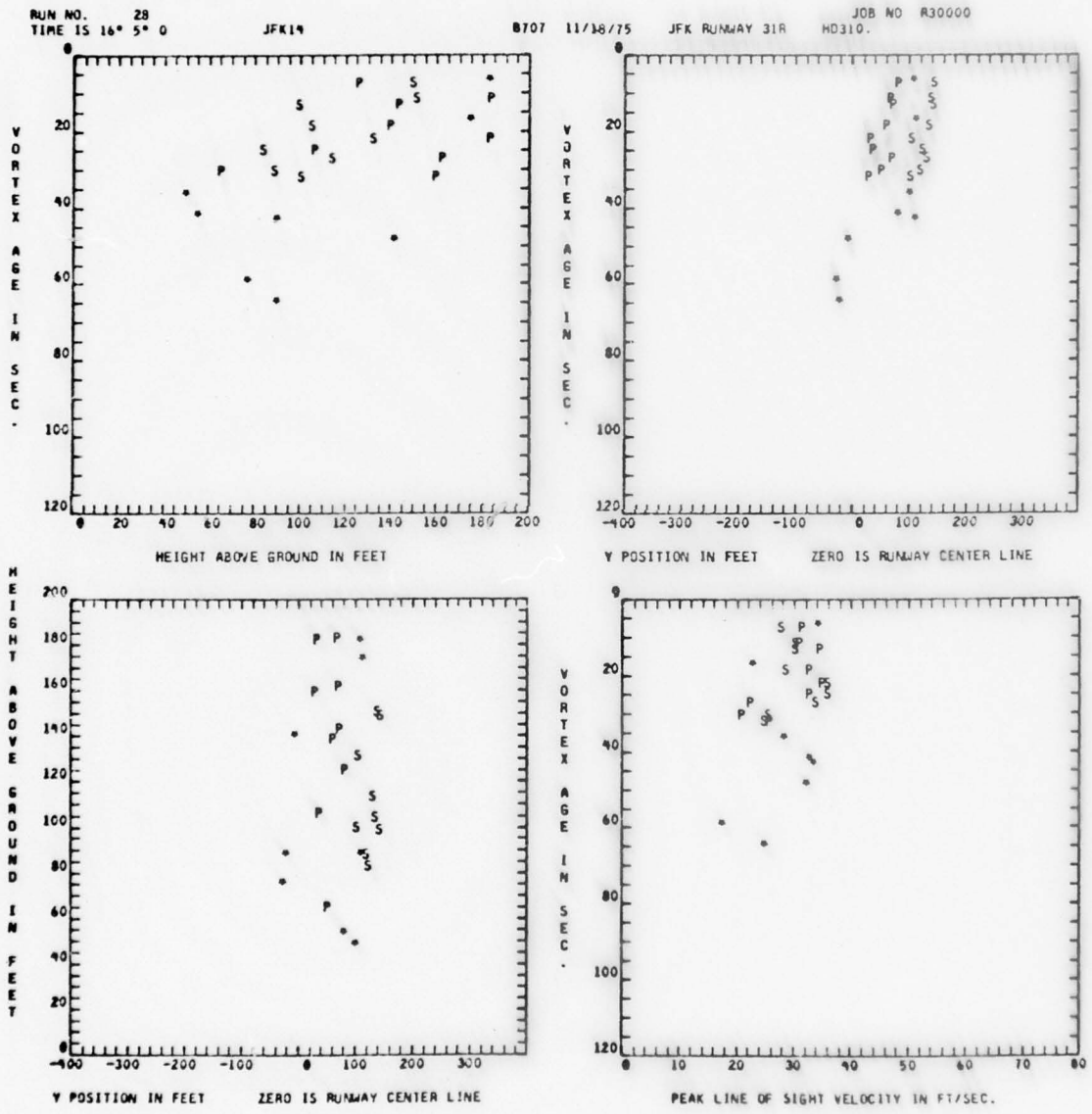

RUN NO. 19
TIME IS 15*38* 0
JFK14
B737 11/18/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

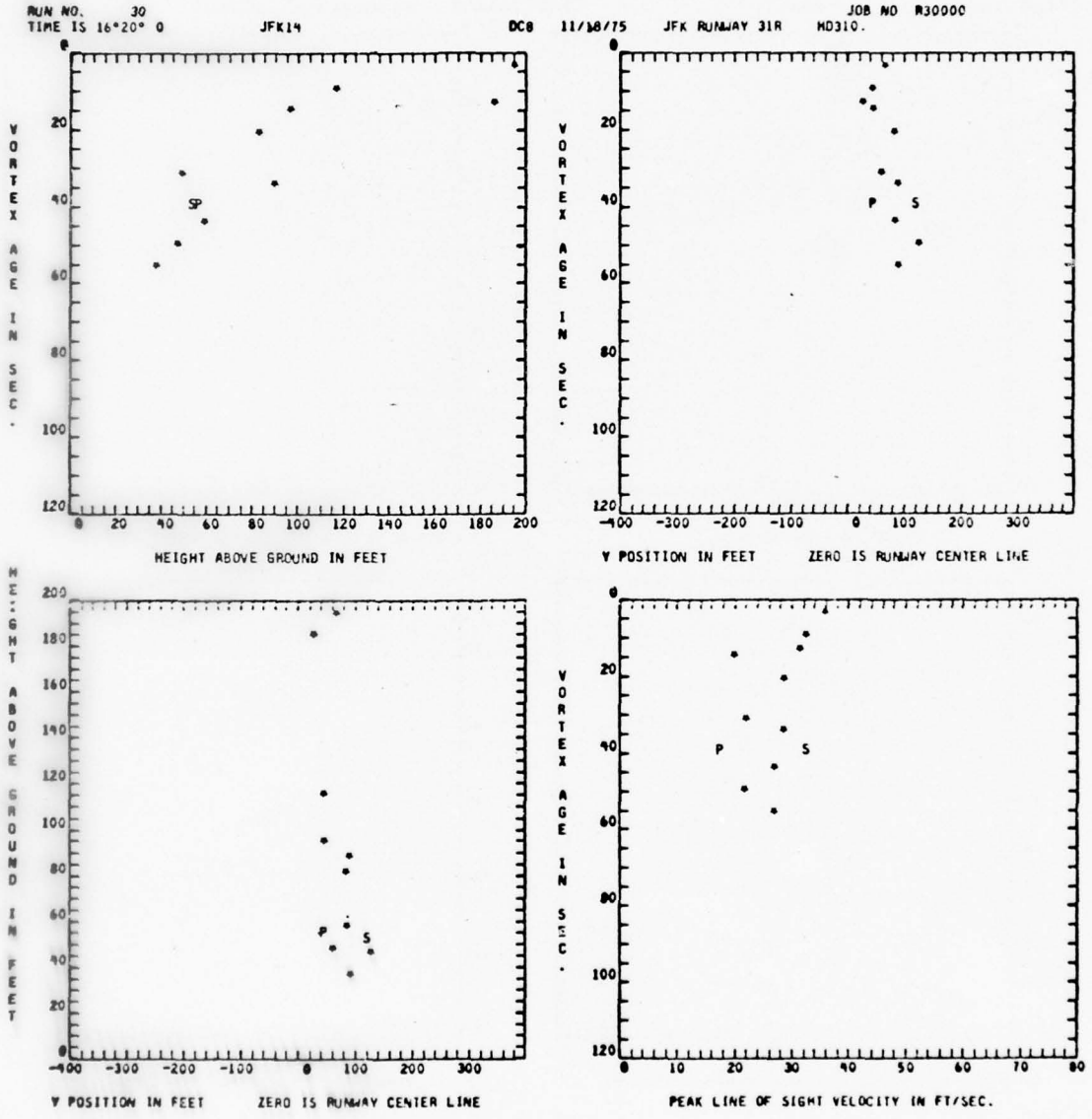

RUN NO. 20
TIME IS 15°40° 0
JFK14
B707 11/18/75
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

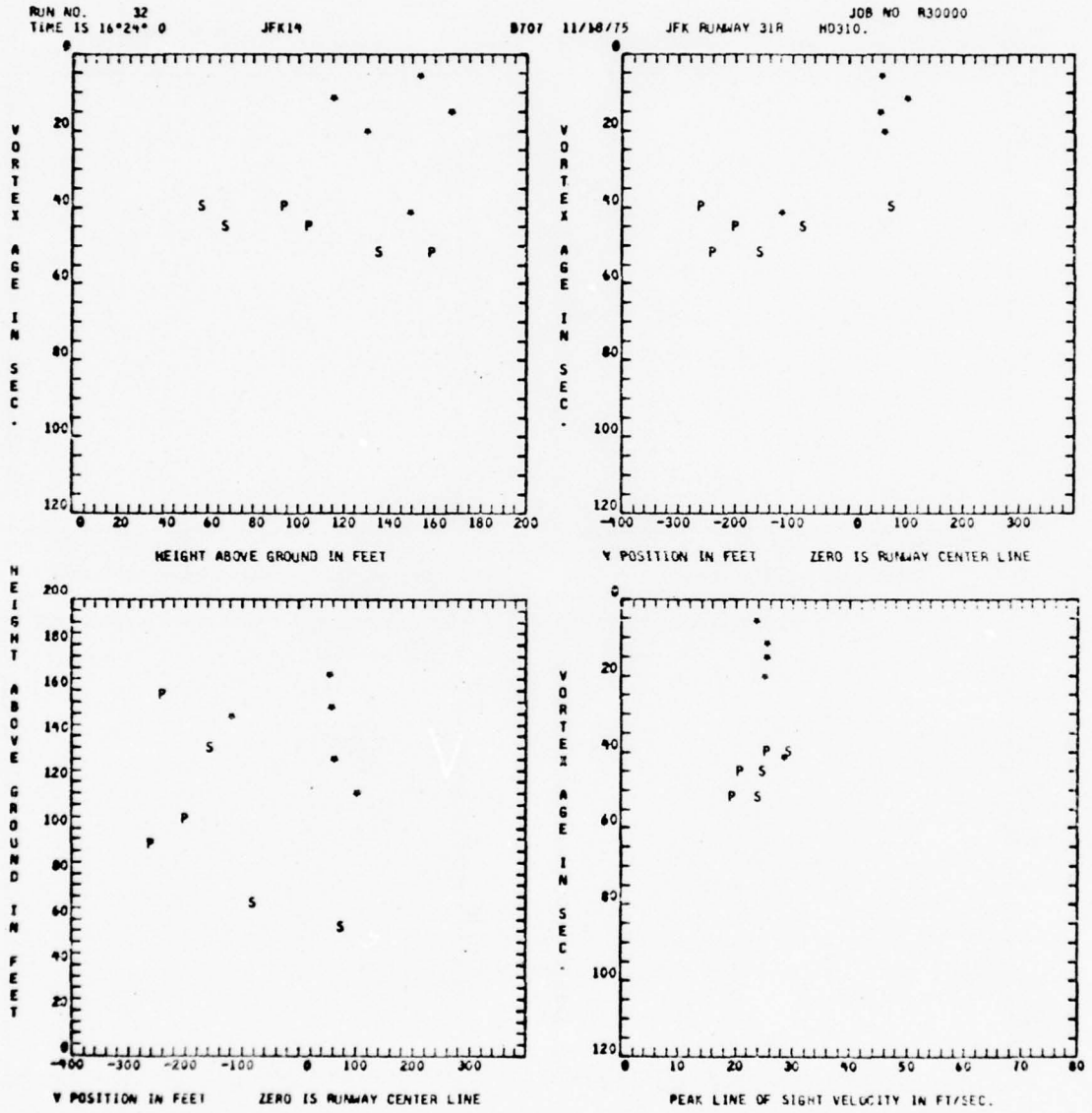

VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

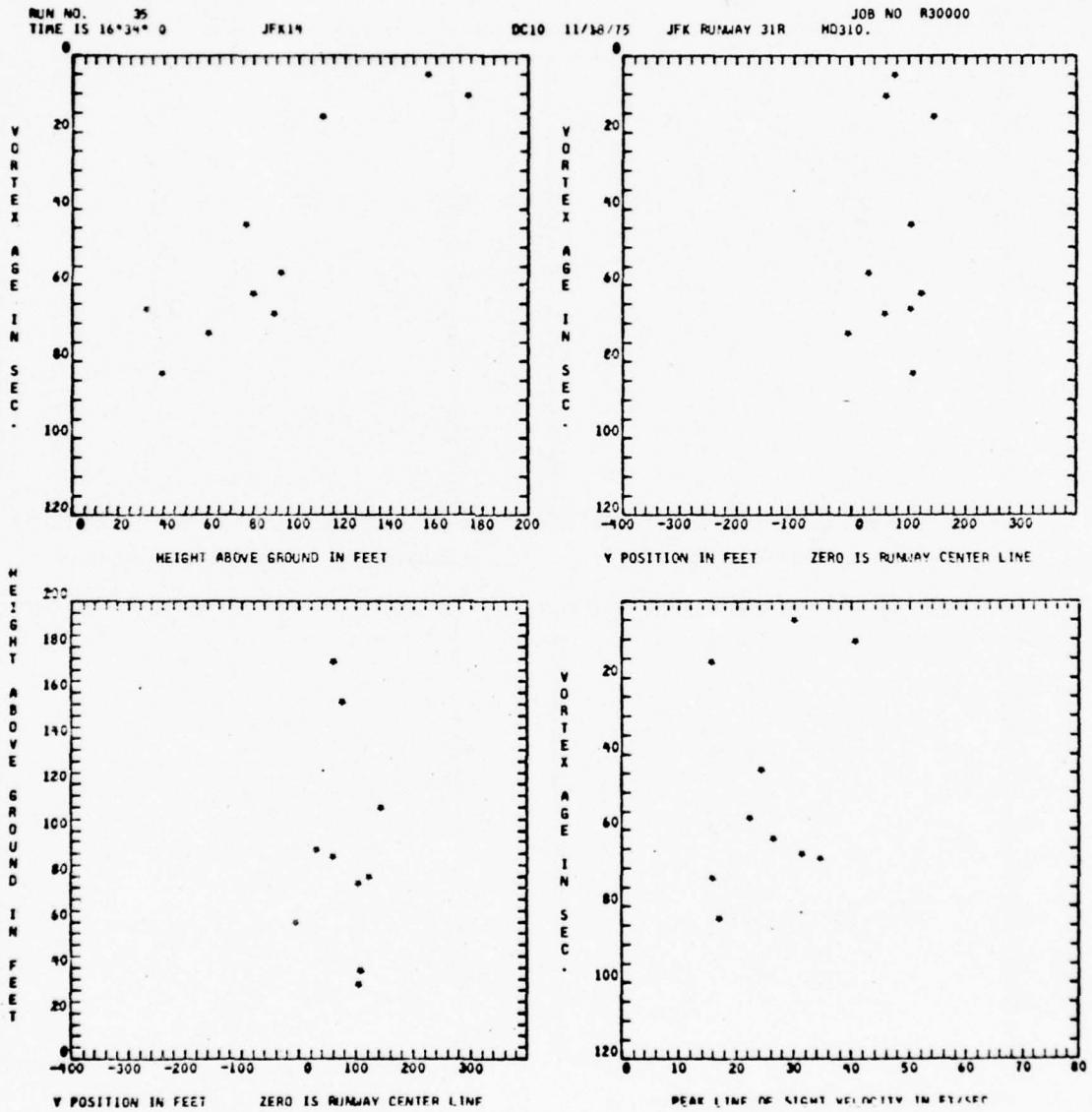

VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

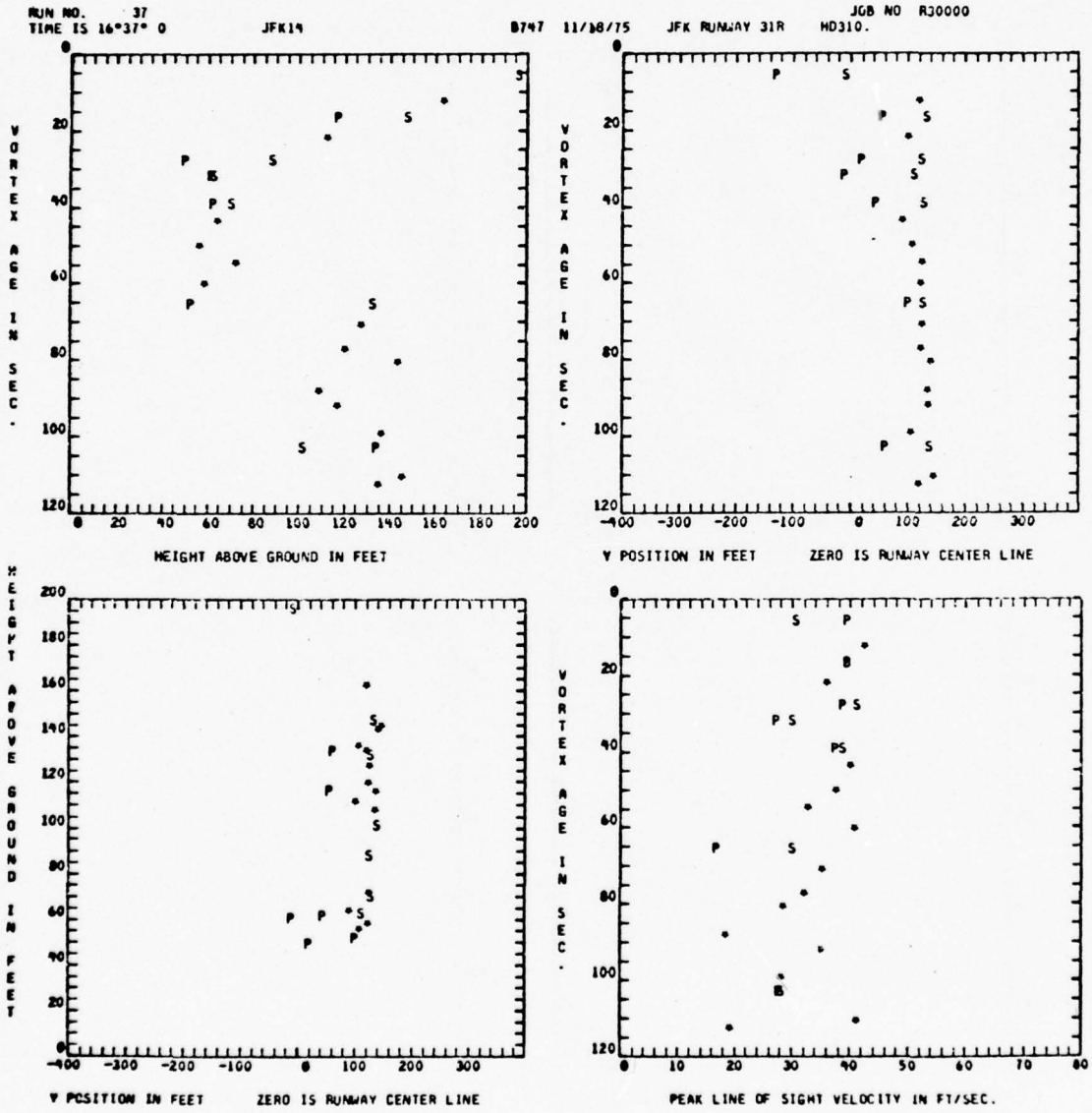

RUN NO. 26
TIME IS 15°57° 0
JFK14
B747 11/18/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

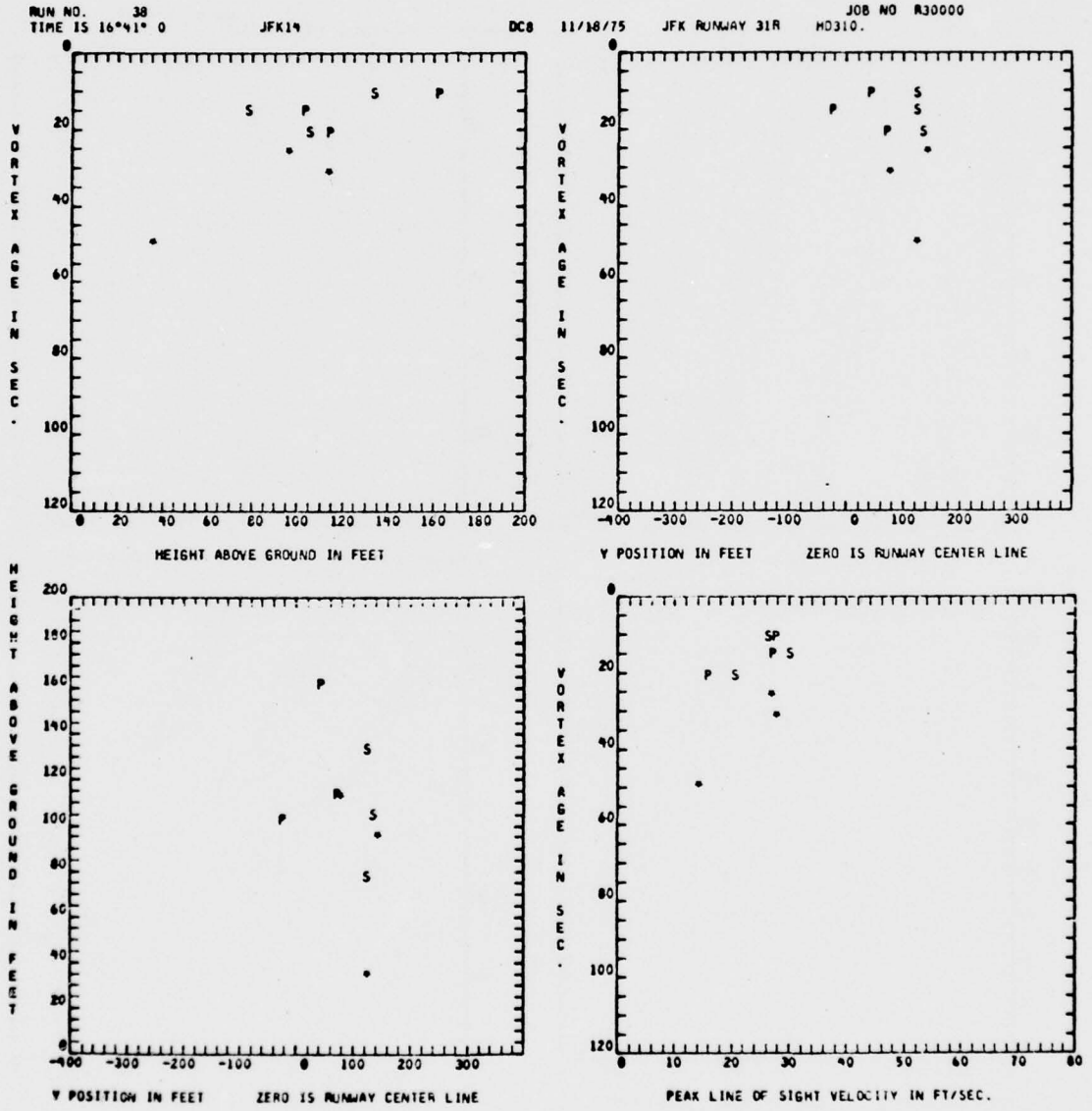

RUN NO. 28
TIME IS 16° 5° 0
JFK14
B707 11/18/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

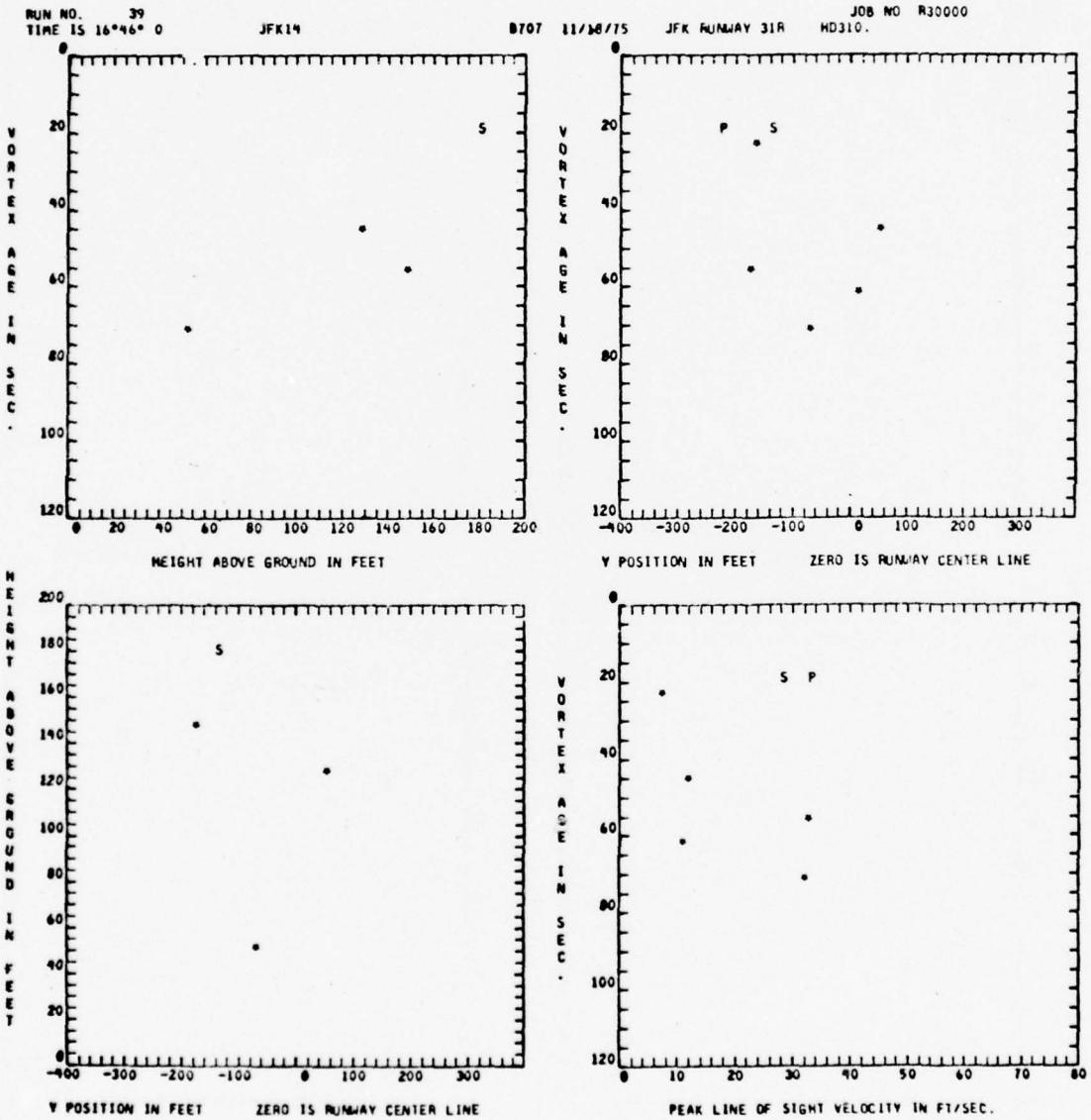

RUN NO. 30
TIME IS 16°20° 0
JFK14
DC8
11/18/75
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.
SP
P
S

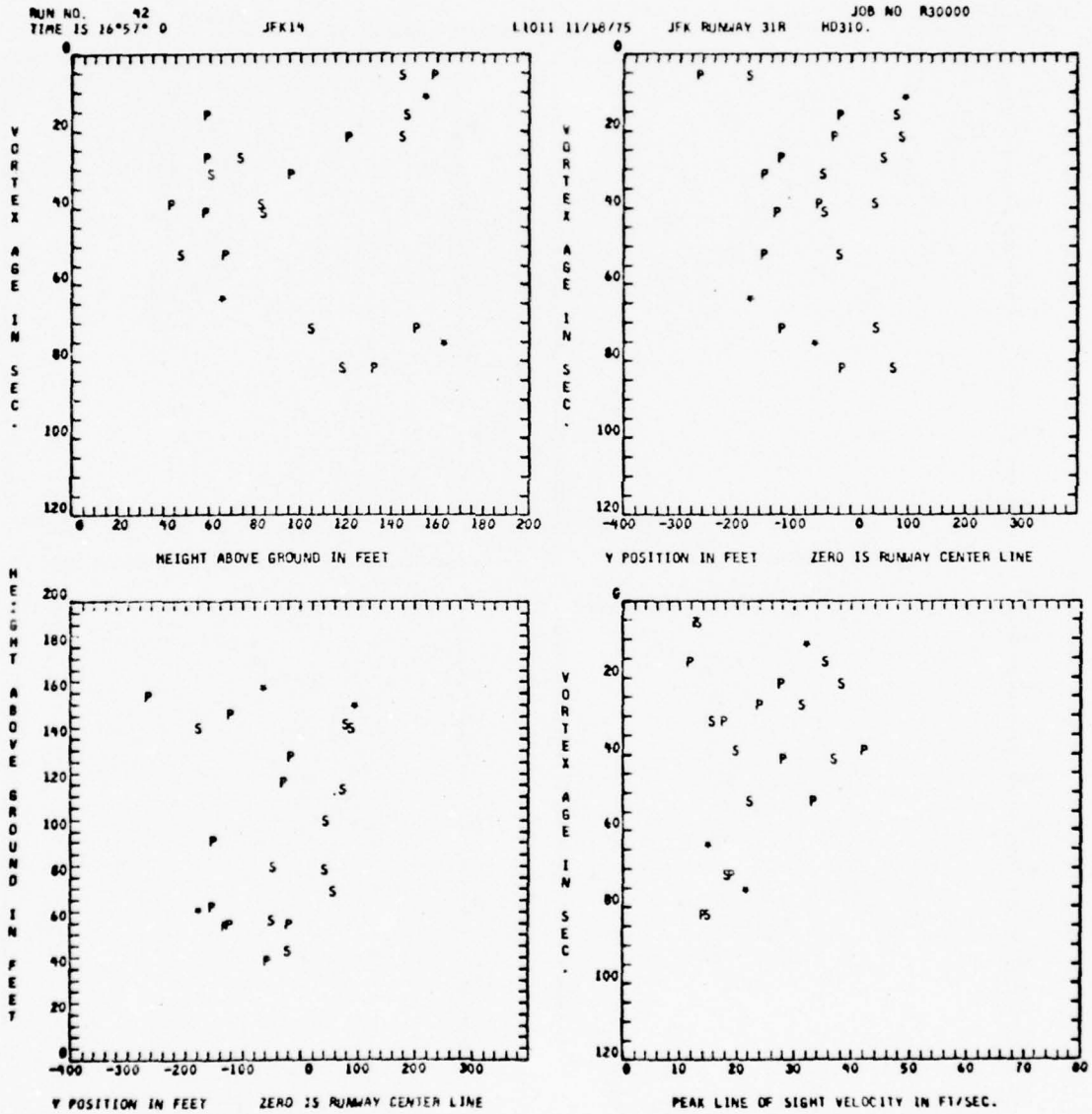

RUN NO. 32
TIME IS 16*24* 0
JFK19
B707 11/18/75
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

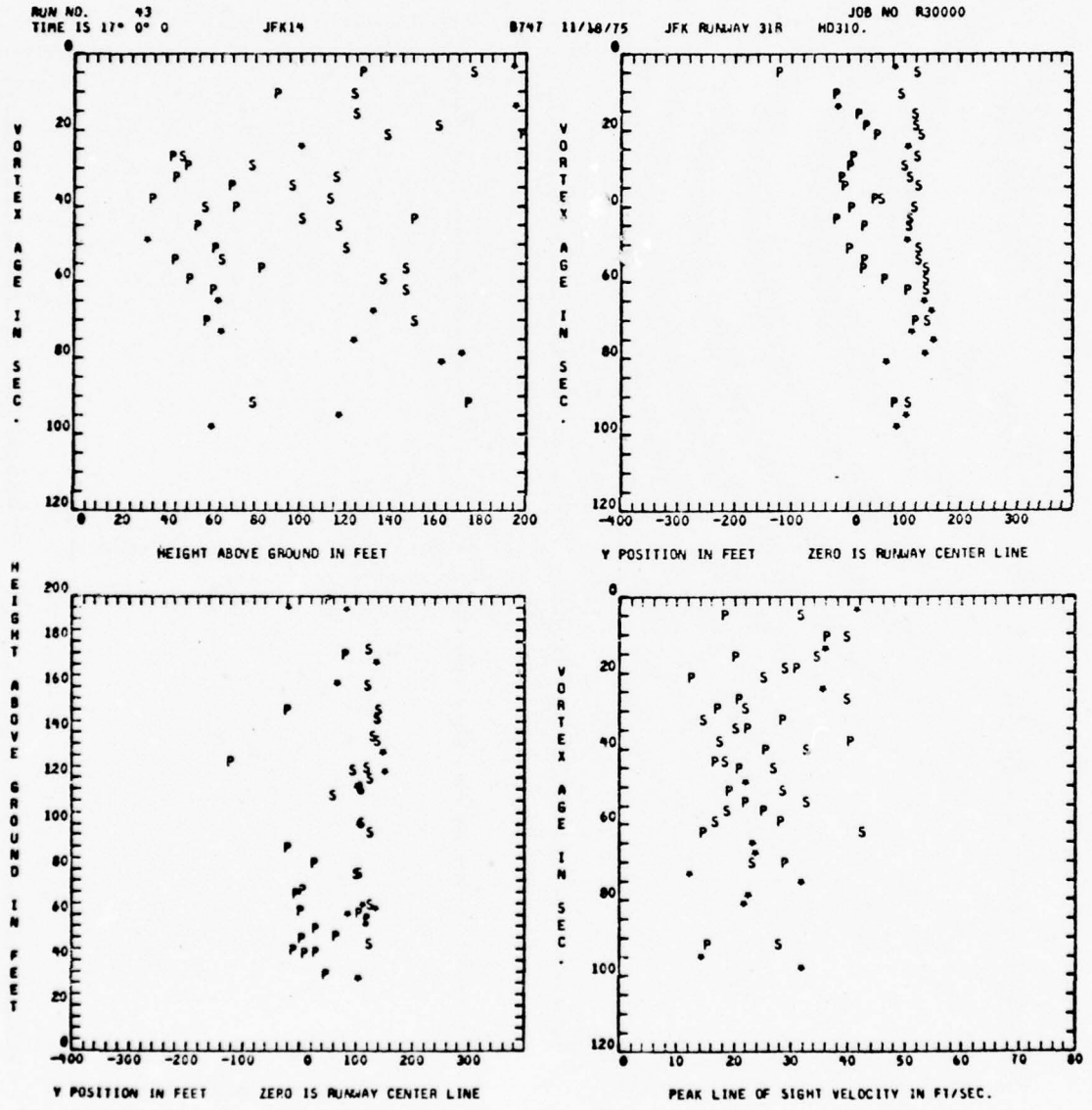

RUN NO. 35
TIME IS 16*34* 0
JFK14
DC10 11/18/75 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC

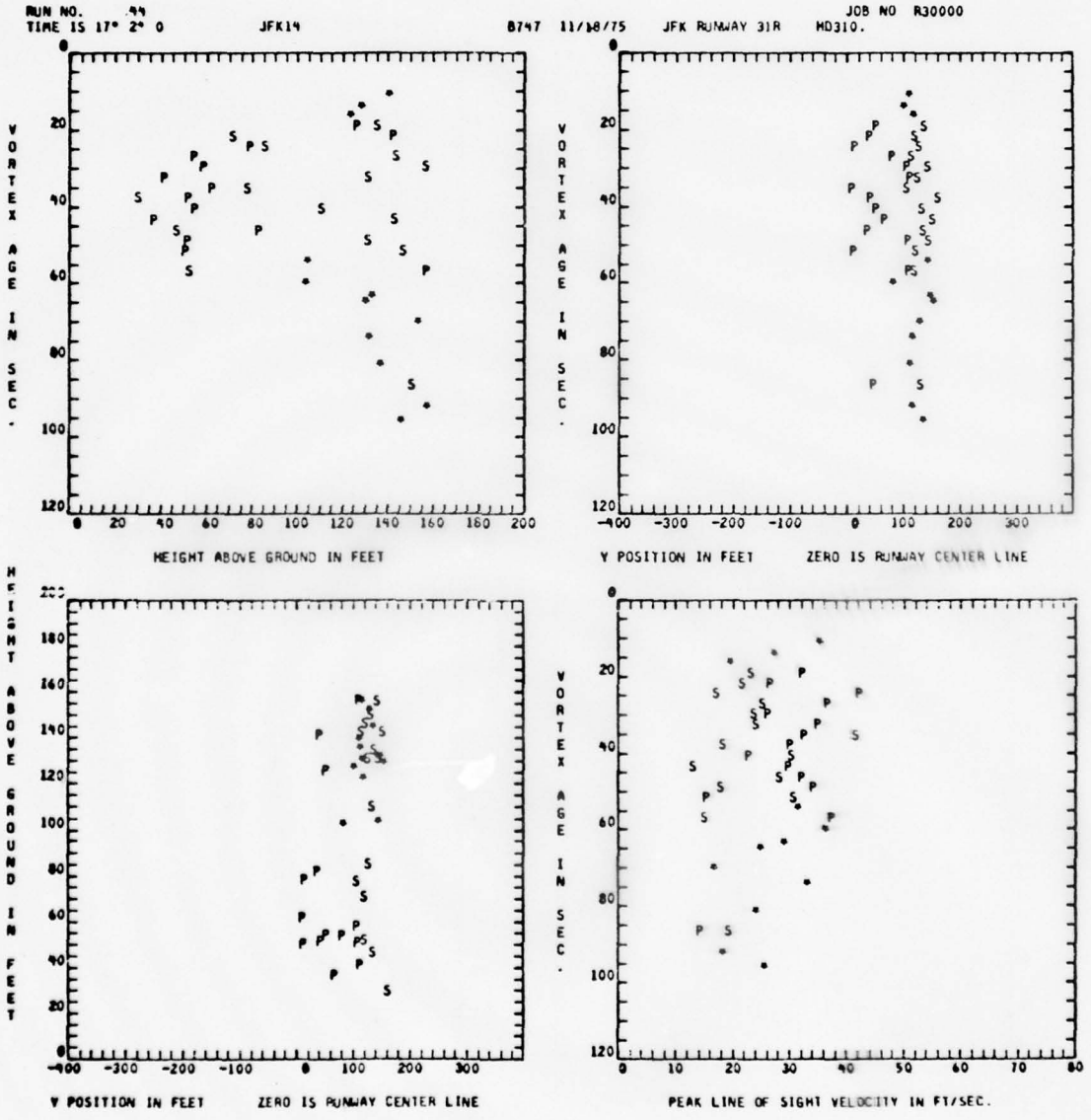

RUN NO. 37
TIME IS 16°37° 0
JFK14
B747 11/18/75
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

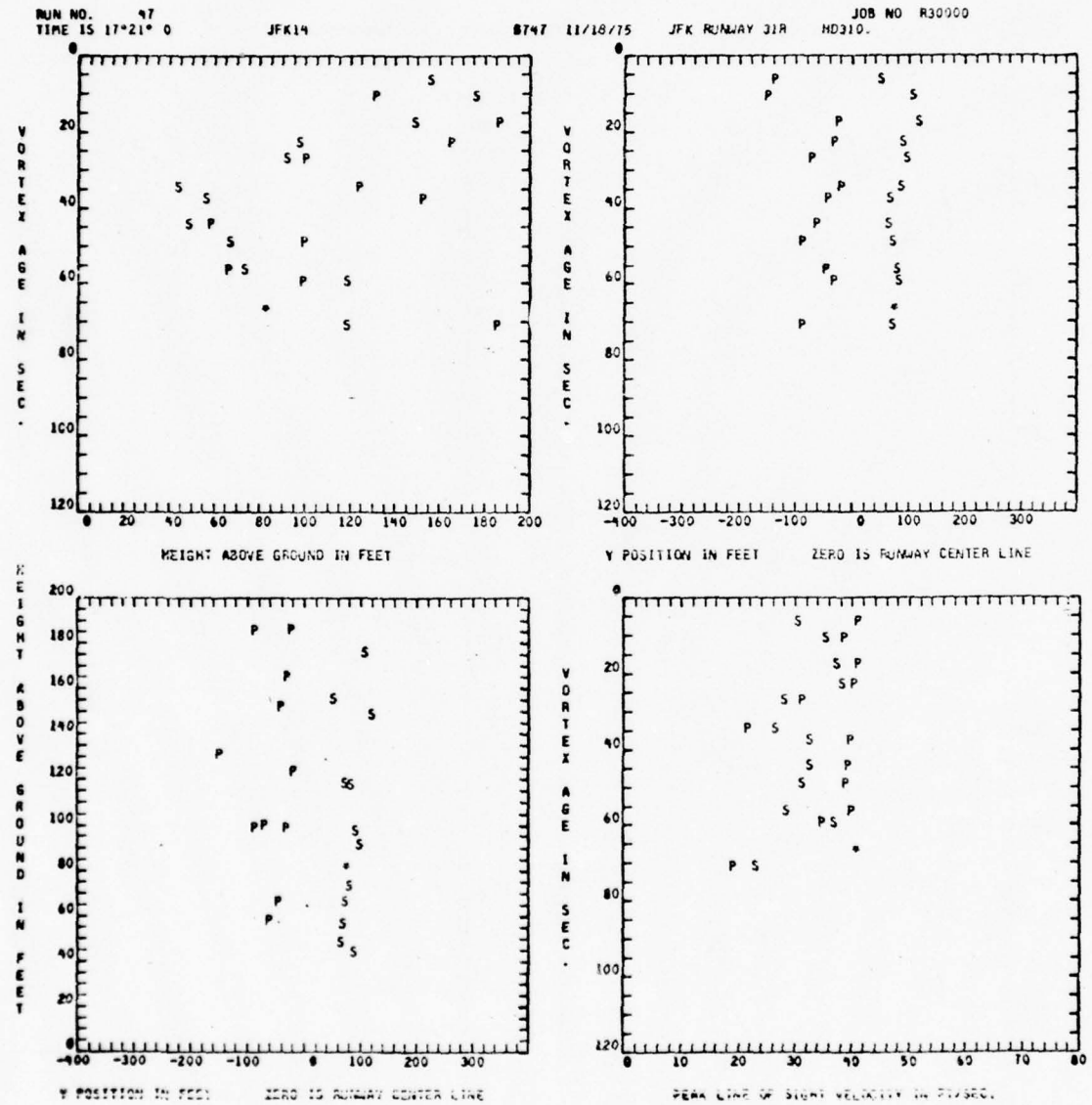

RUN NO. 38
TIME IS 16°41° 0
JFK14
DC8
11/18/75
JFK RUNWAY 31R
JOB NO R30000
HD310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

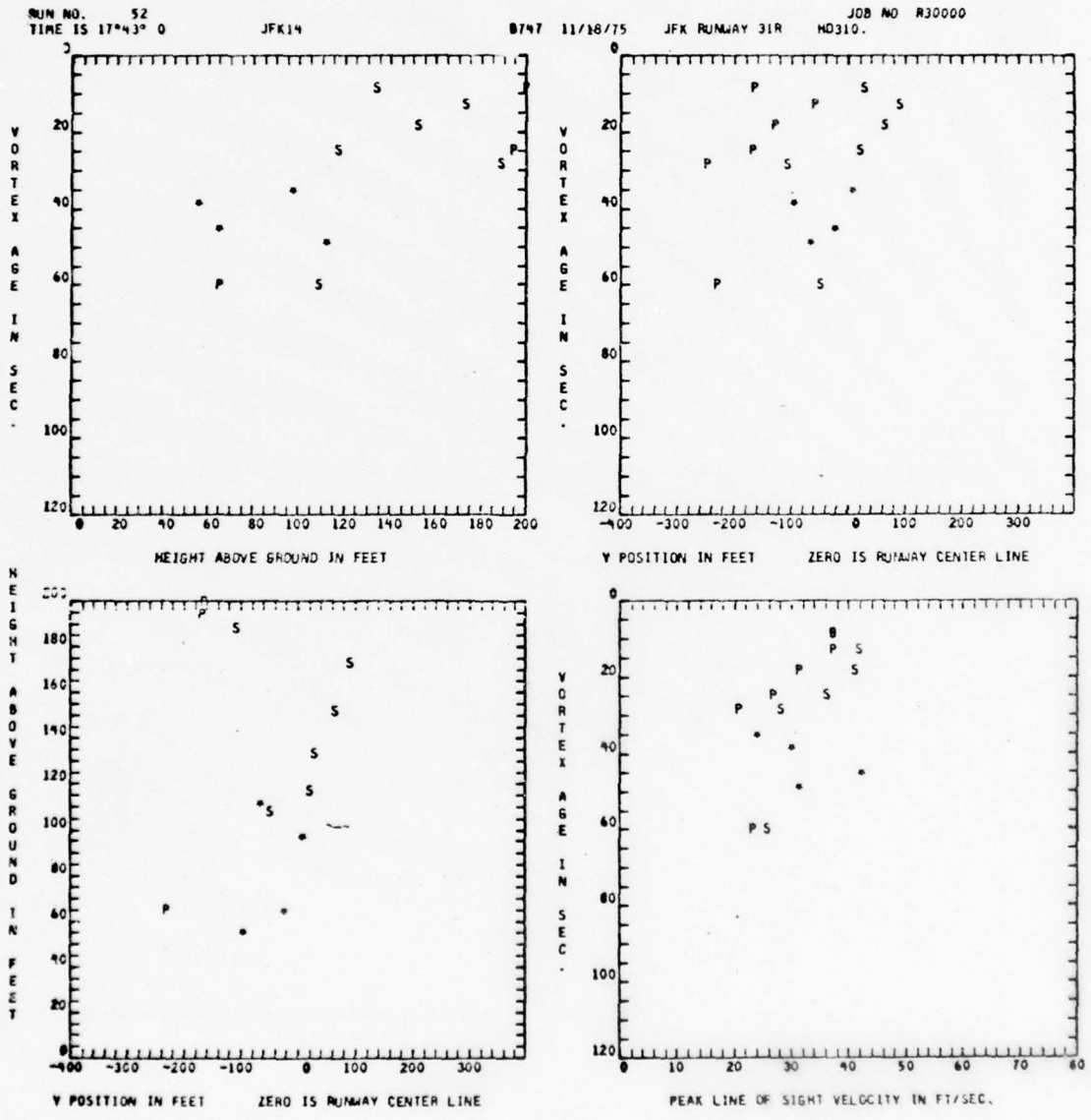

RUN NO. 39
TIME IS 16*46* 0
JFK14
B707 11/18/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.
S
P

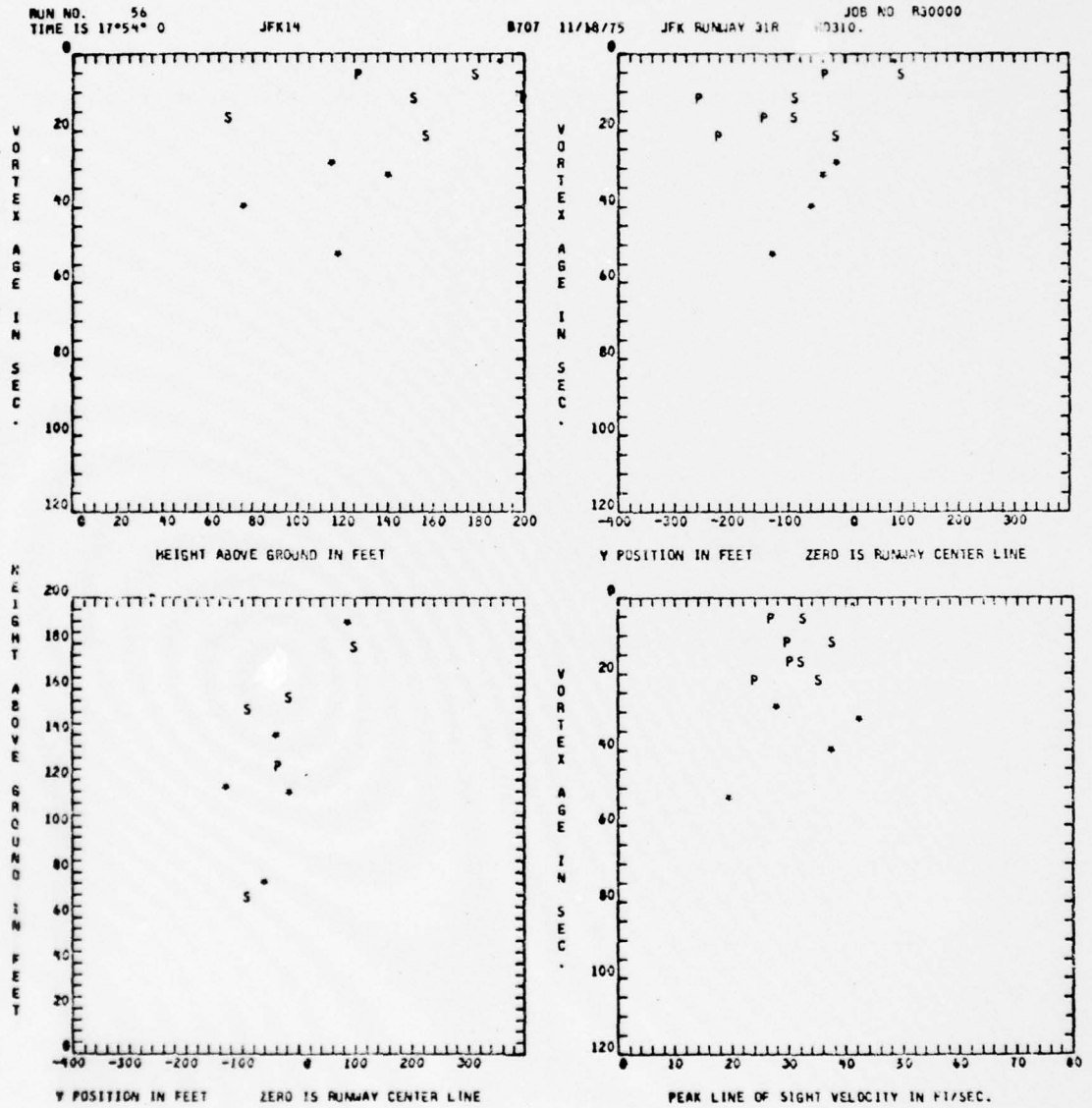

RUN NO. 92
TIME IS 16°57' 0
JFK14
L1011 11/18/75
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 43
TIME IS 17° 0° 0
JFK14
B747 11/18/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 99
TIME IS 17° 2° 0
JFK14
B747 11/18/75
JFK RUNWAY 31R
MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 97
TIME IS 17*21* 0
JFK14
B747 11/18/75
JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 52
TIME IS 17*43* 0
JFK14
B747 11/18/75 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 56
TIME IS 17°54° 0
JFK14
B707 11/18/75
JFK RUNWAY 31R
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

JFK21

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ISFILE  =          +1,          +1,          +7,          +8,
                  +21,         +21,         +49,         +49,
                +1000,       +1000,       +1000,       +1000,
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                +1000,       +1000,       +1000,       +1000
NRUN    =         +65
ZLASER  =   .70000000E+01
ZLASCN  =   .00000000E+00
INTVEL  =          +2
NPSUF   =          +4
APERCT  =   .10000000E+00
BPERCT  =   .10000000E+00
CPERCT  =   .50000000E+00
RPERCT  =   .31415927E+00
EPERCT  =   .15000000E+01
NOISEF  =          +0
ADJ1    =   .00000000E+00
ANGSW   =   .00000000E+00
WANGLE  =   .00000000E+00
WINDHP  =   .80000000E+03
LFLIP   =          +3
ISINE   =          +2
EDIT    =   .20000000E+00
MOVAVE  =          +5
YLIM    =   .00000000E+00,   .00000000E+00
ZLIM    =   .00000000E+00,   .00000000E+00
ISCALE  =          +1
YR      =   .40000000E+03
YL      =  -.40000000E+03
ZT      =   .20000000E+03
TMAX    =   .12000000E+03
VMAX    =   .80000000E+02
NSPLT   =         +12
JPROF   =          +1
IMULT   =          +0
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IOP2    =          +2
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IOP4    =          +1

$END
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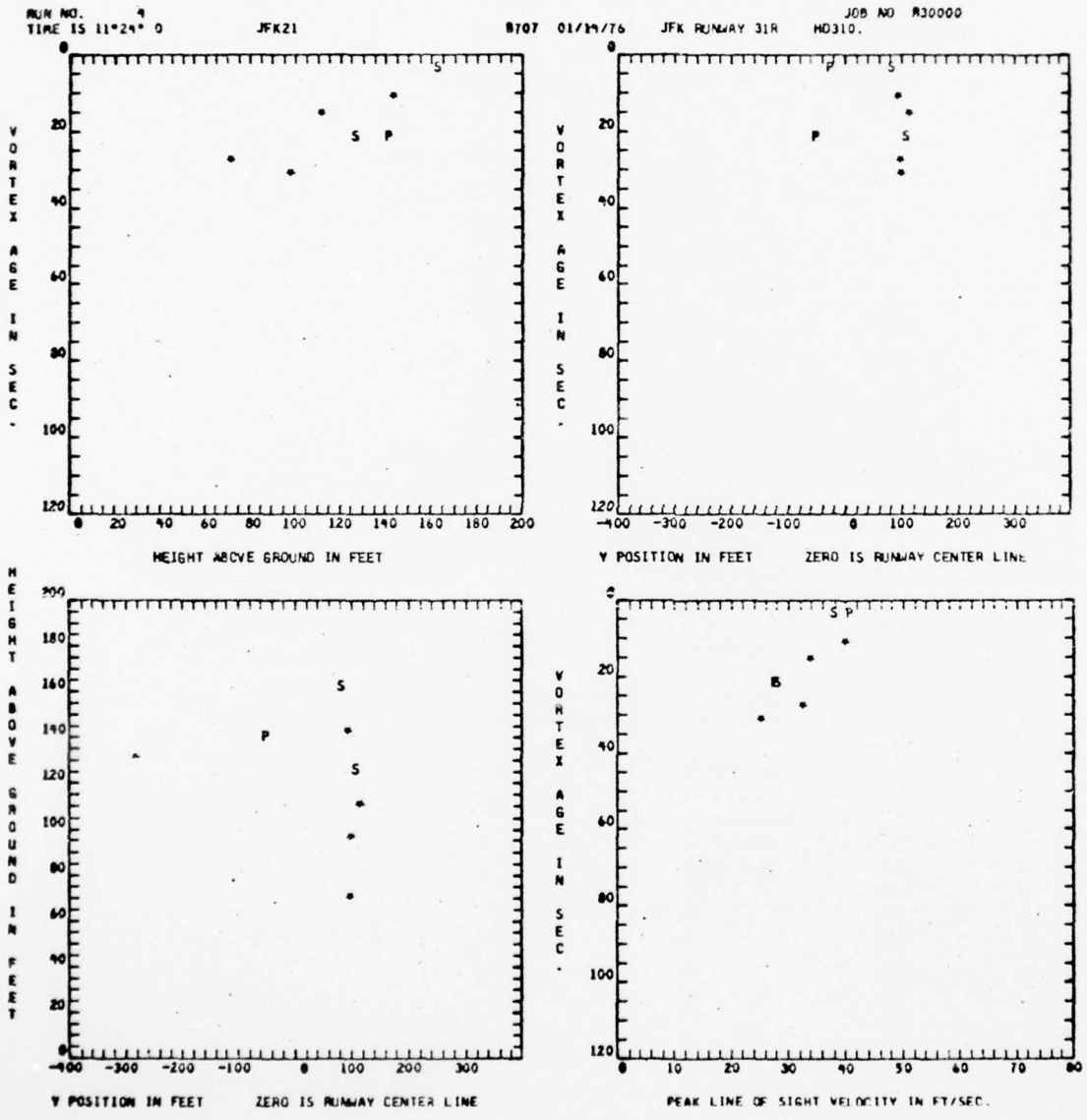
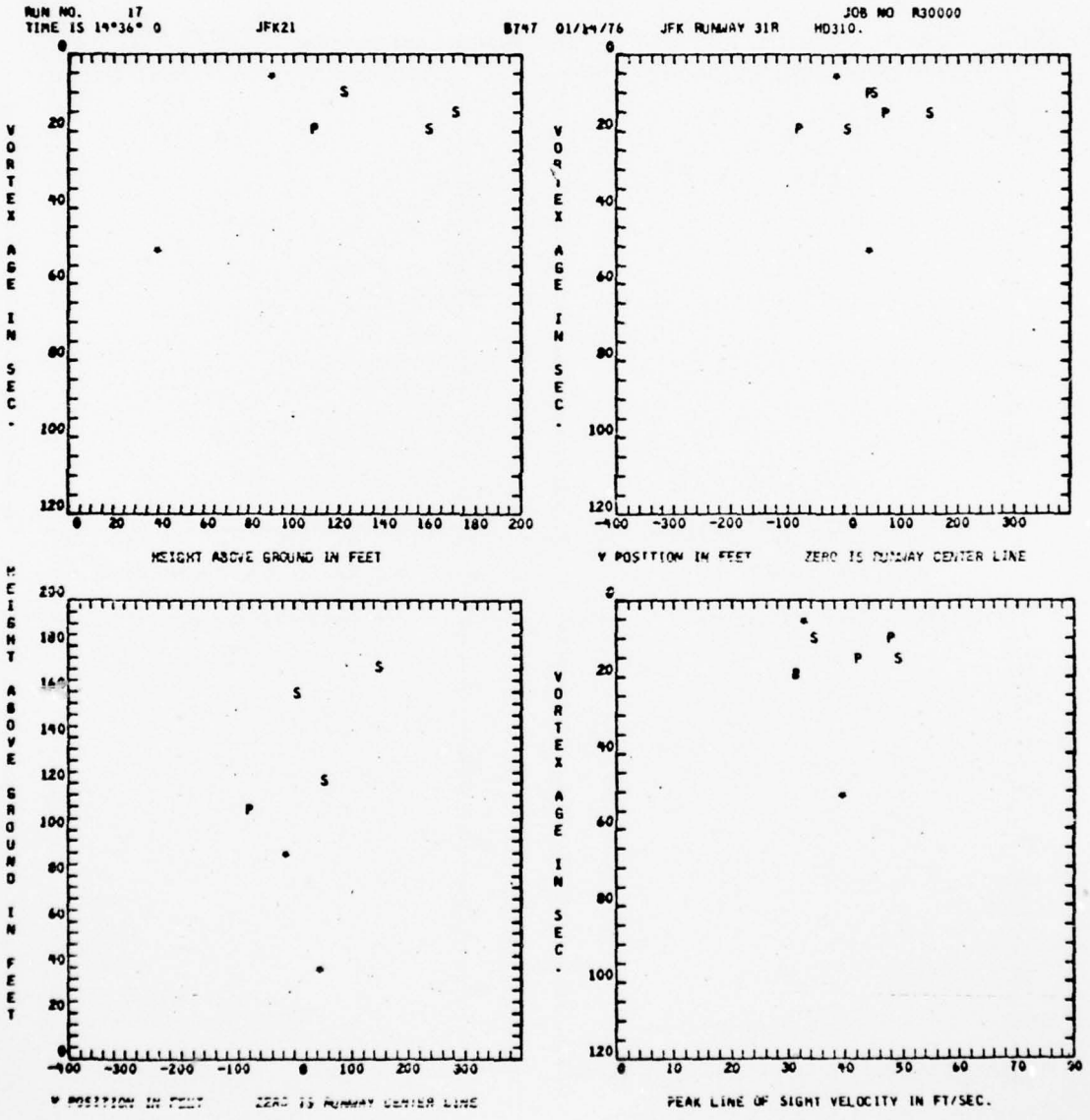
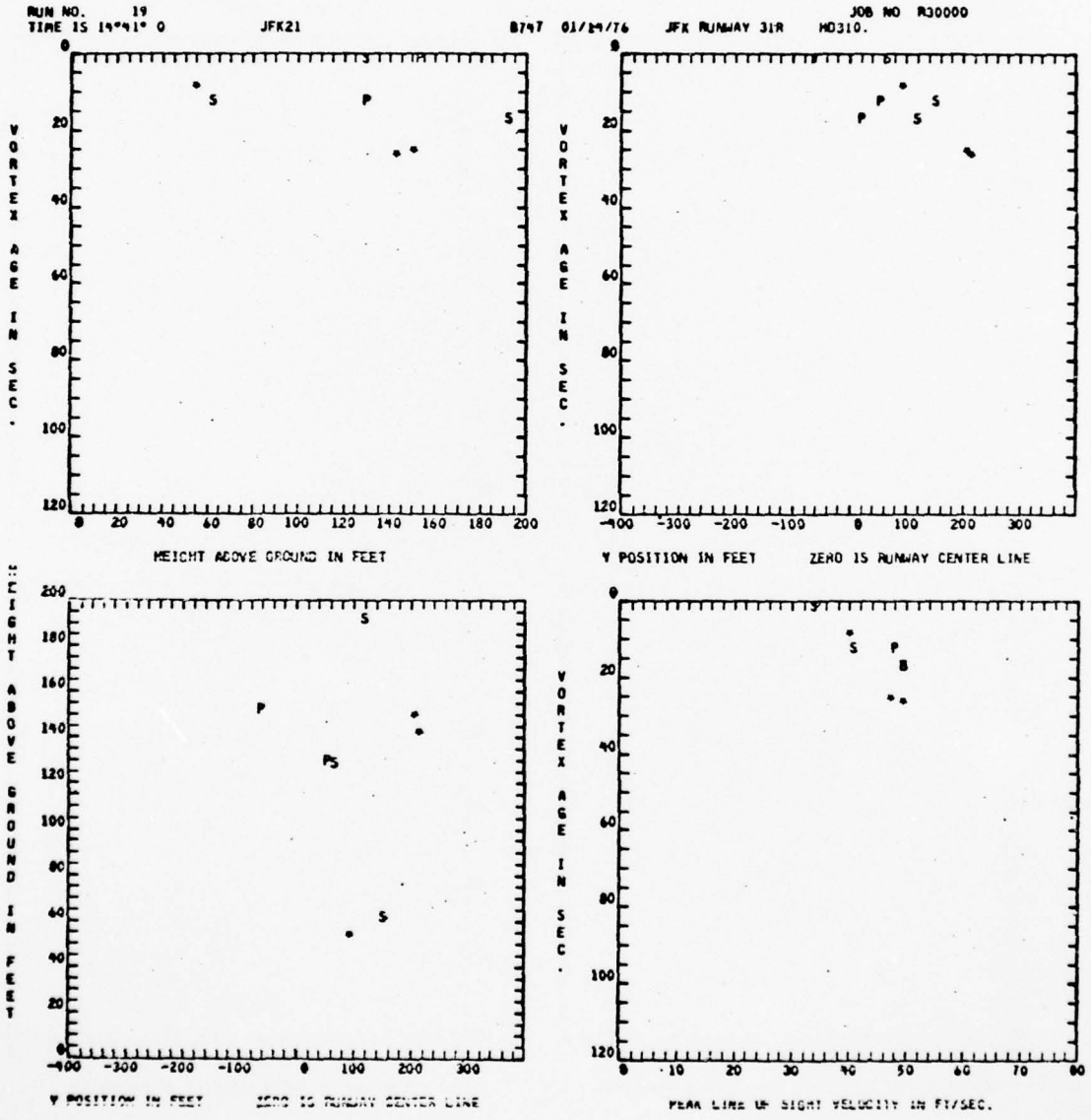
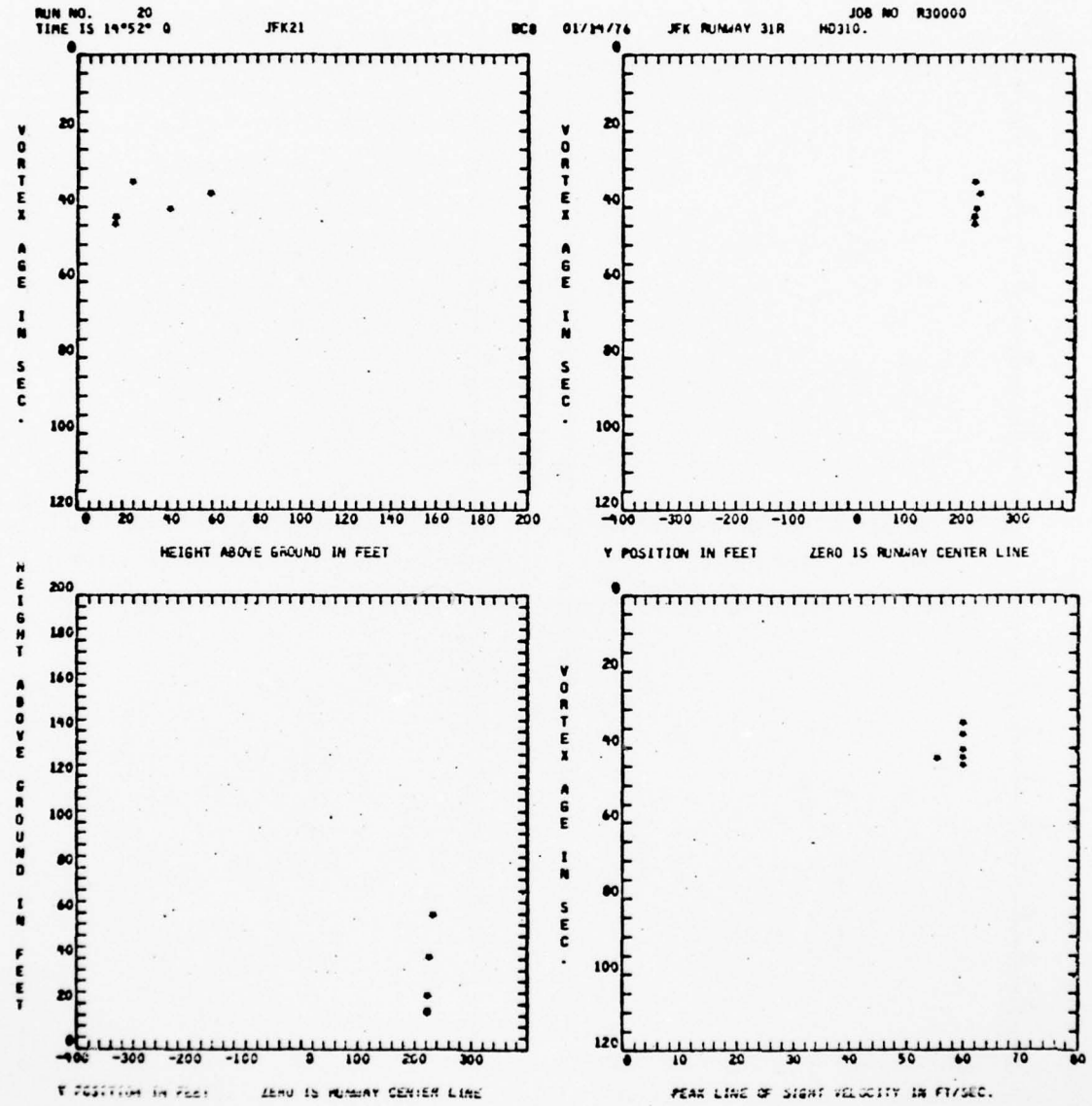
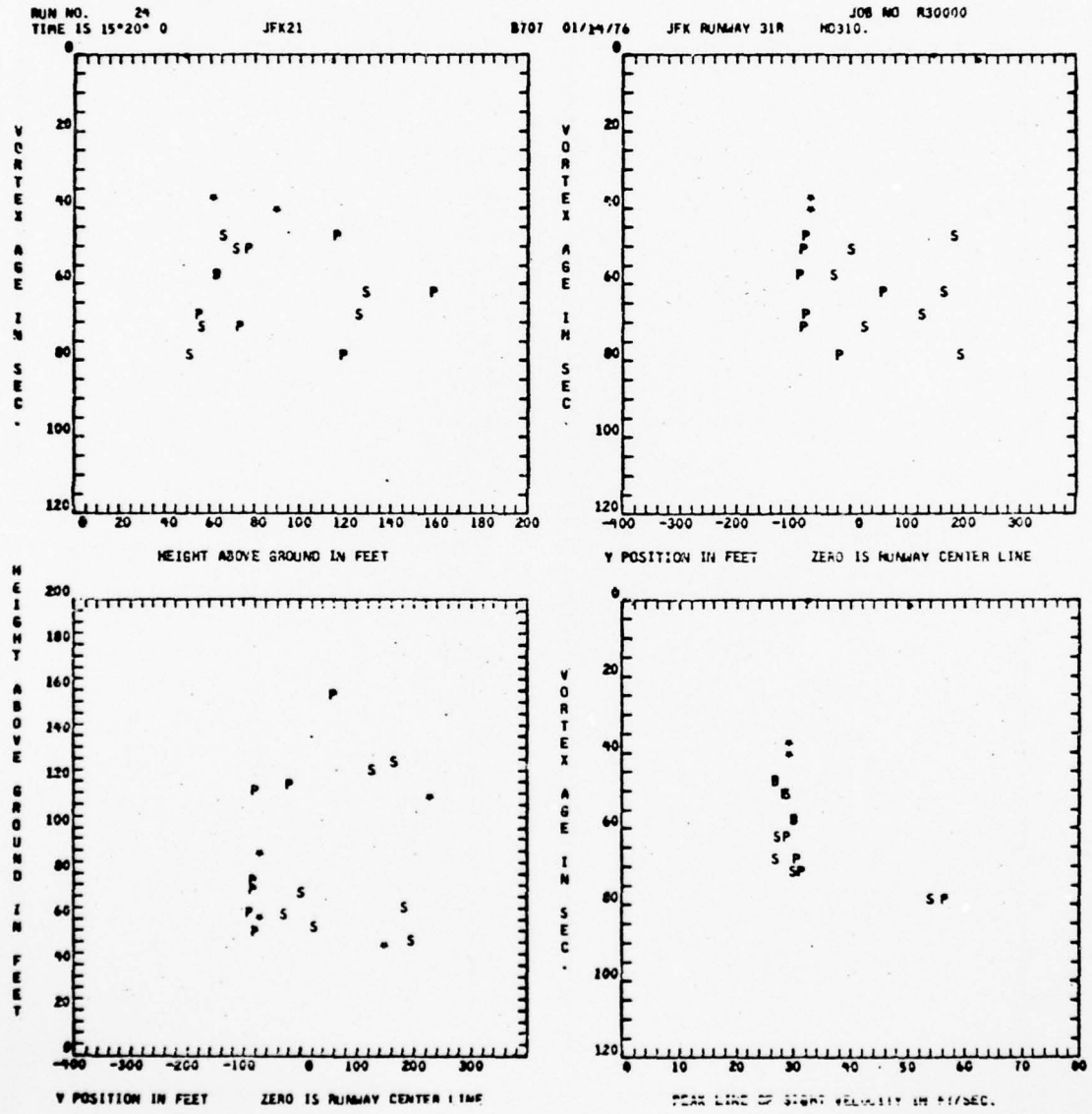
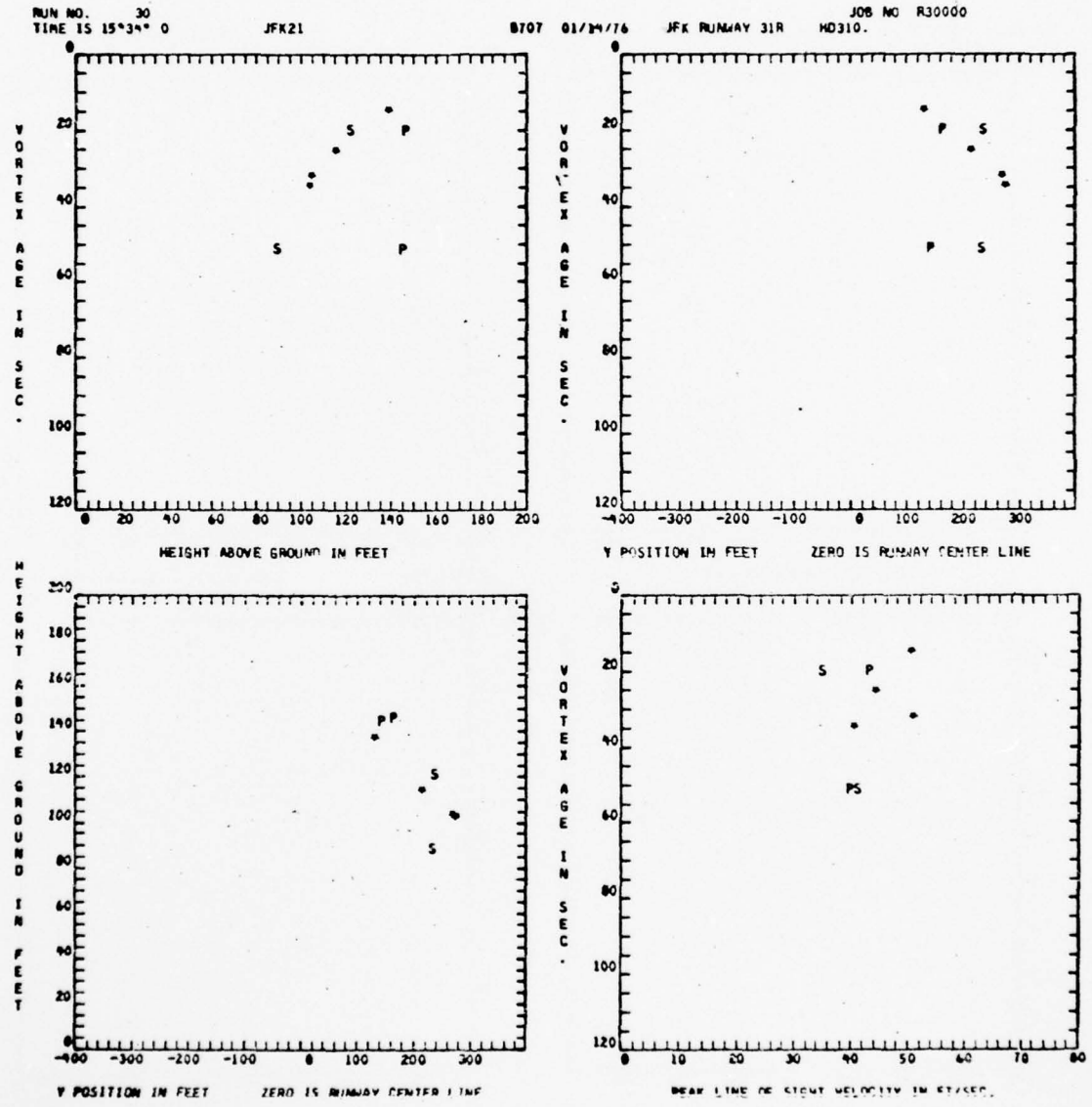

RUN NO. 4
TIME IS 11*24* 0
JFK21
B707 01/19/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

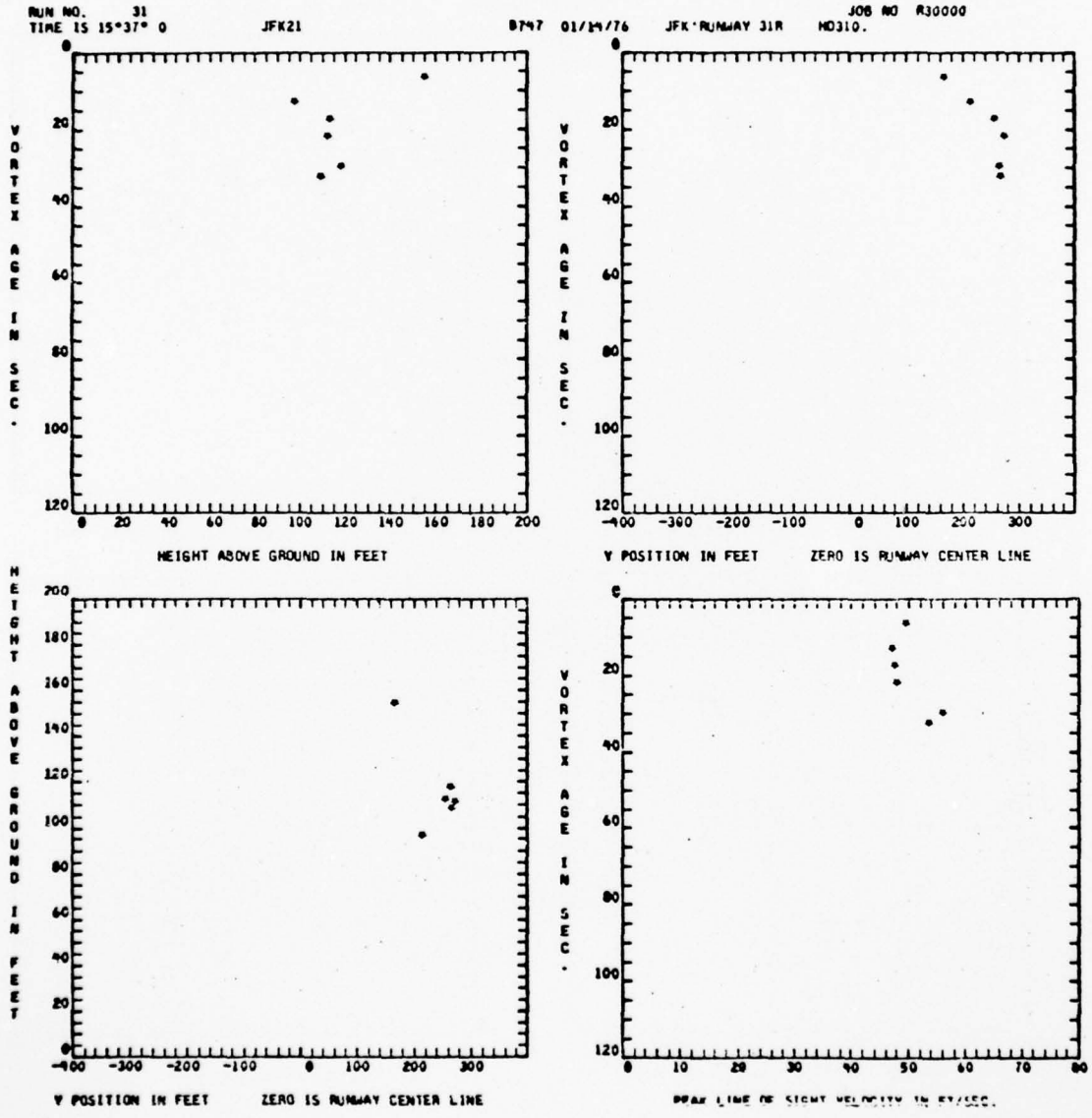

RUN NO. 17
TIME IS 14°36° 0
JFK21
B747 01/14/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

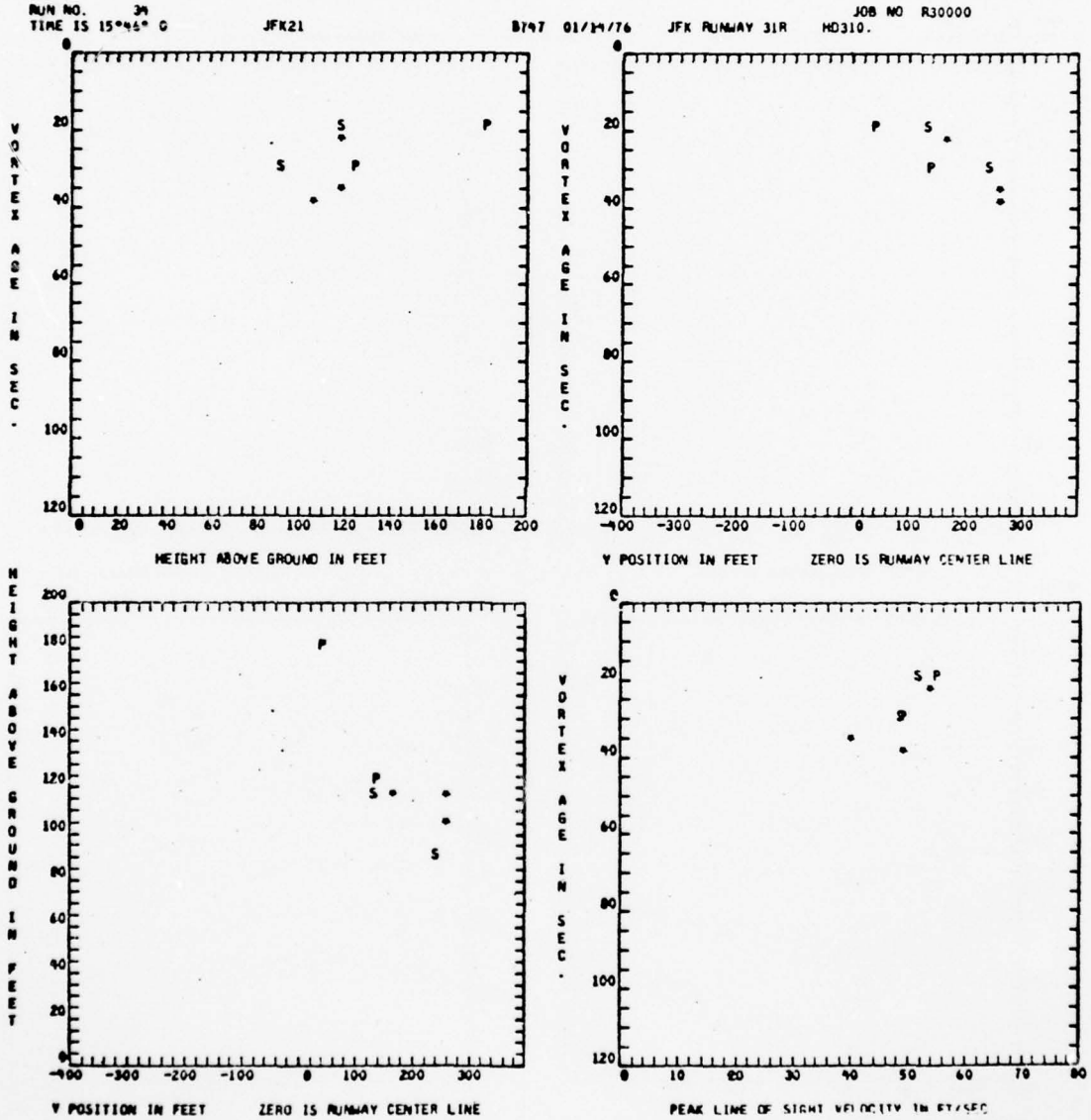

RUN NO. 19
TIME IS 19°41° 0
JFK21
B747 01/29/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE UP SIGHT VELOCITY IN FT/SEC.

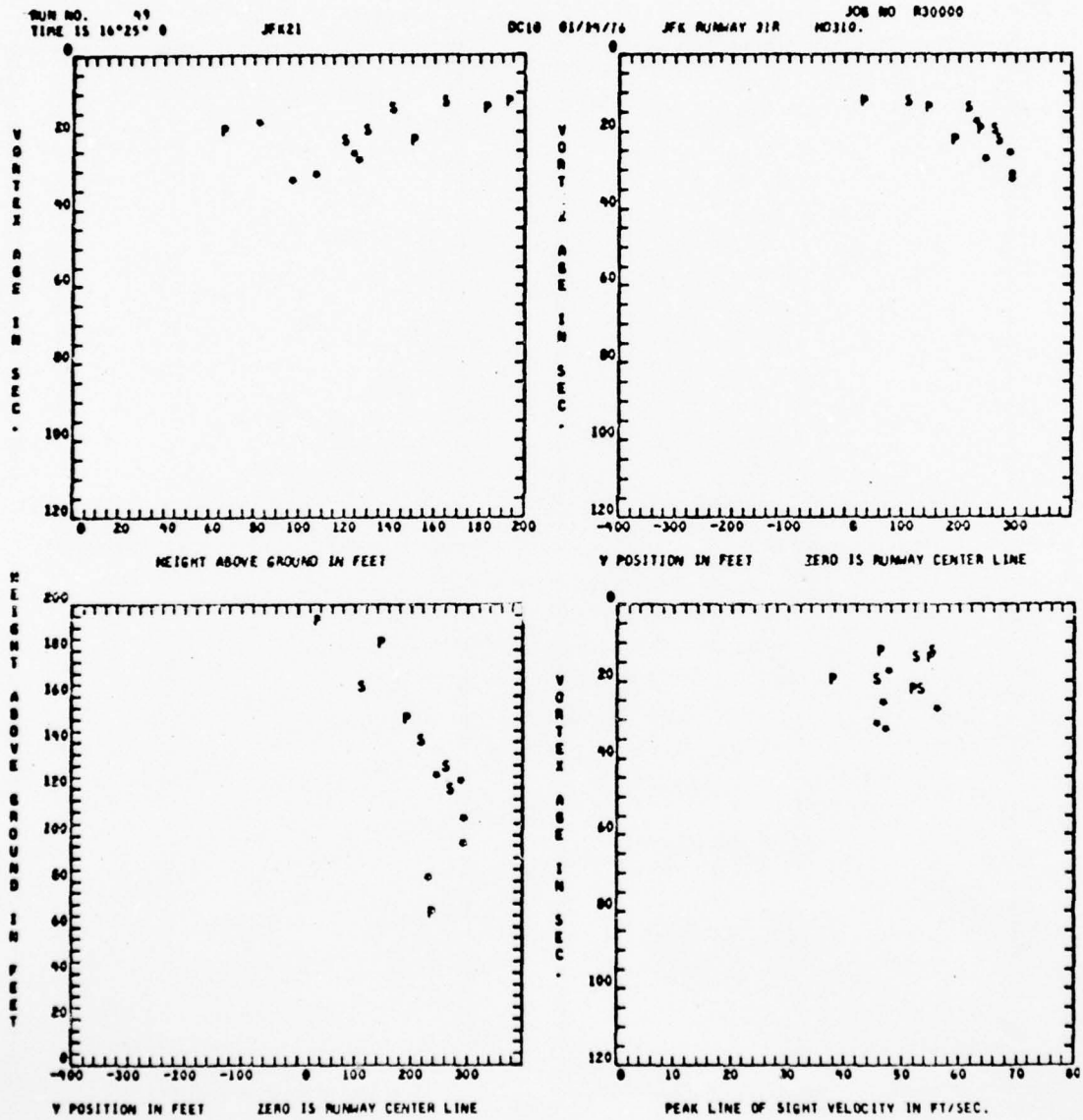

RUN NO. 20
TIME IS 14°52° 0
JFK21
BC8
01/14/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

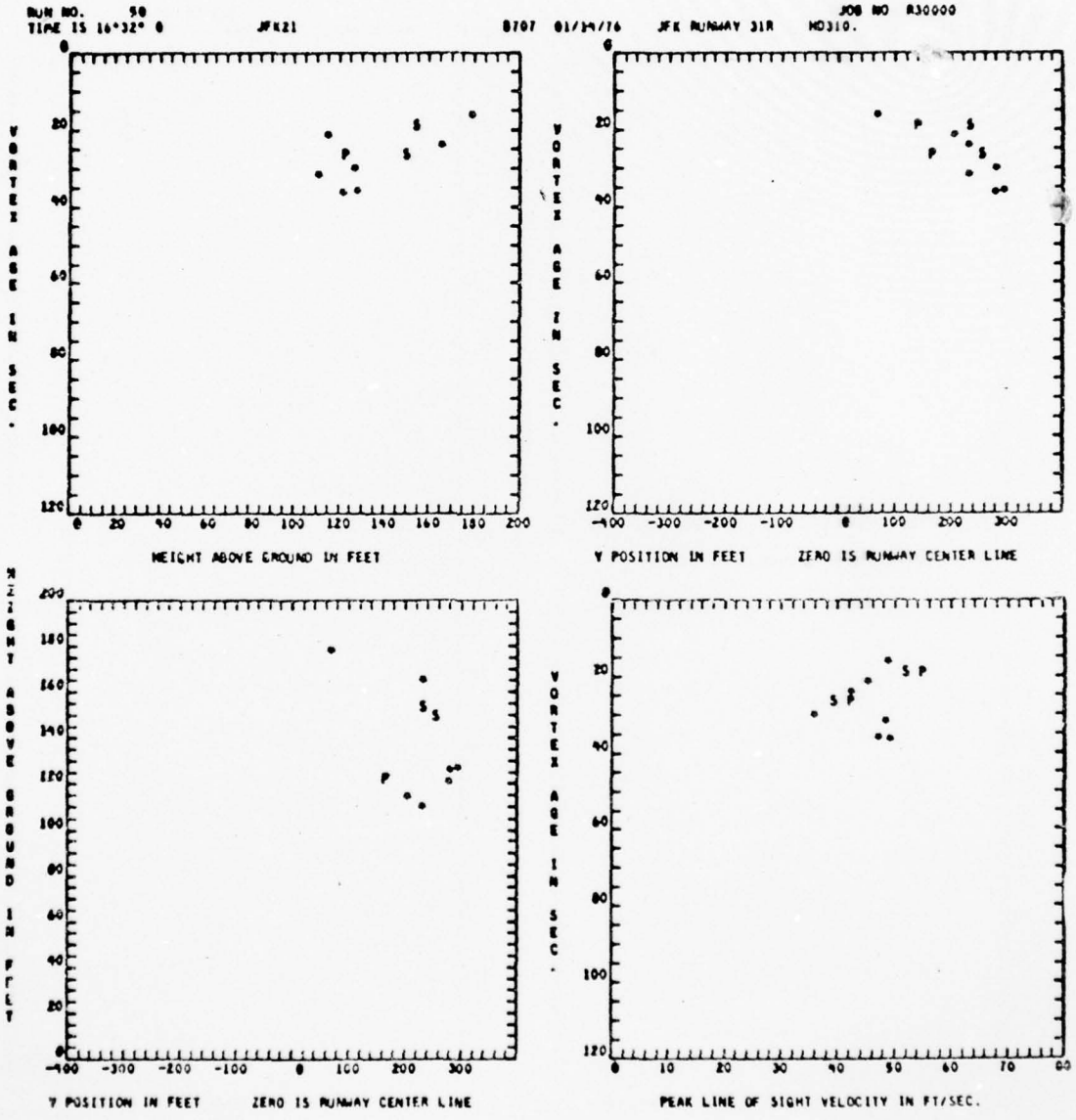

RUN NO. 24
TIME IS 15°20° 0
JFK21
B707 01/24/76 JFK RUNWAY 31R HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

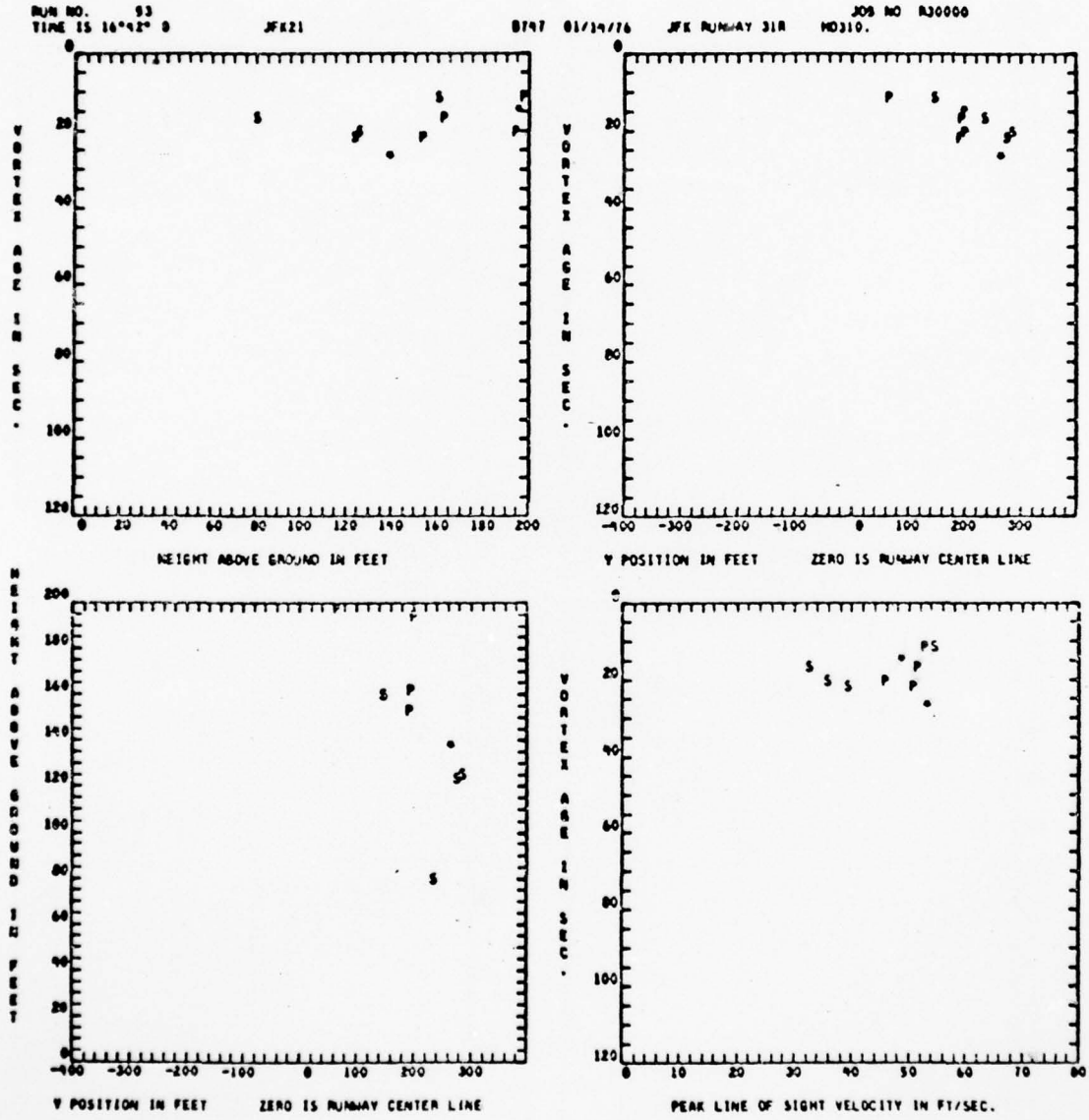

RUN NO. 30
TIME IS 15°34' 0
JFK21
B707 01/14/76
JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
BEAM LINE OF SIGHT VELOCITY IN KT/SEC.

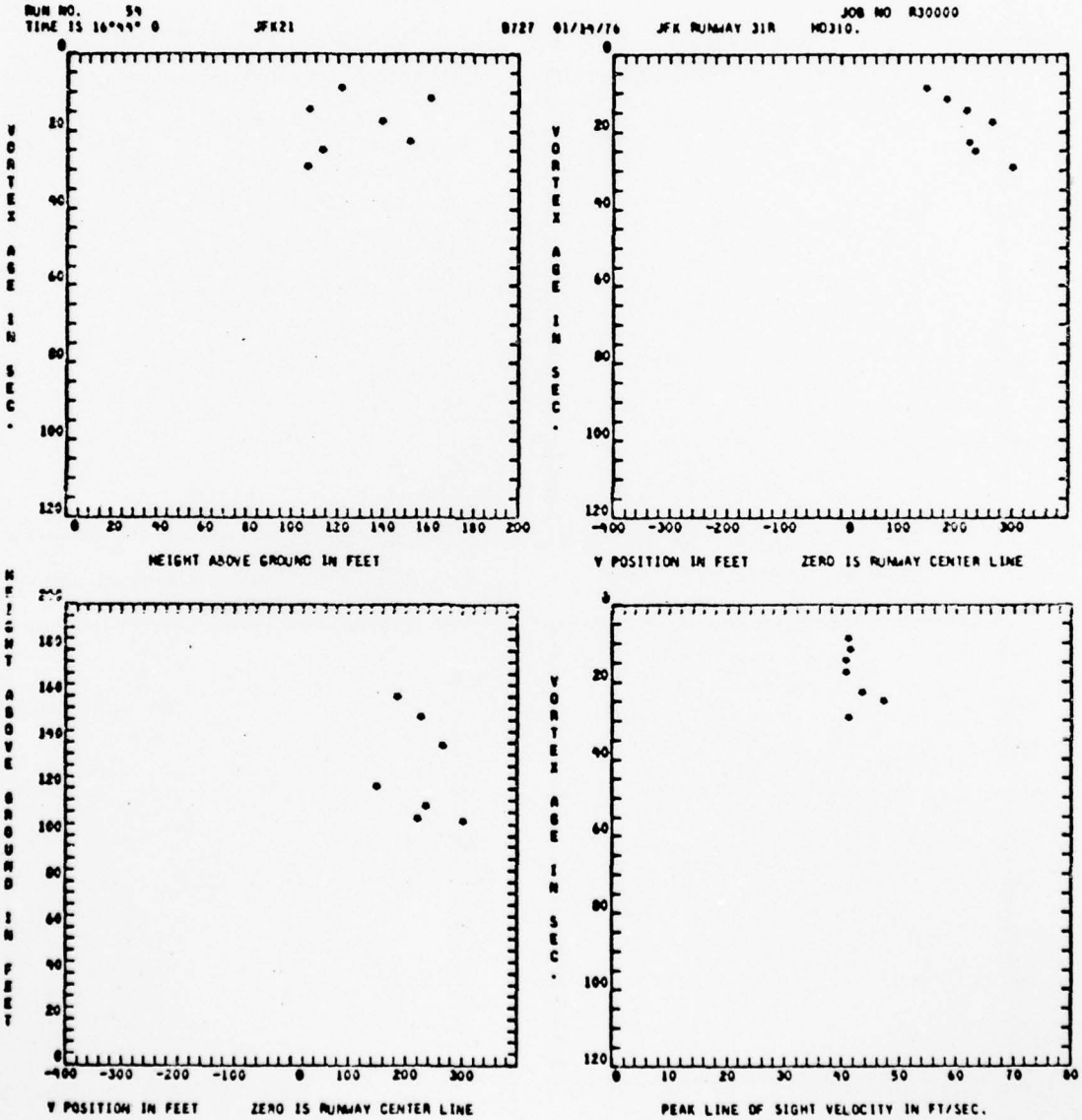

RUN NO. 31
TIME IS 15°37° 0
JFK21
B747 01/14/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE

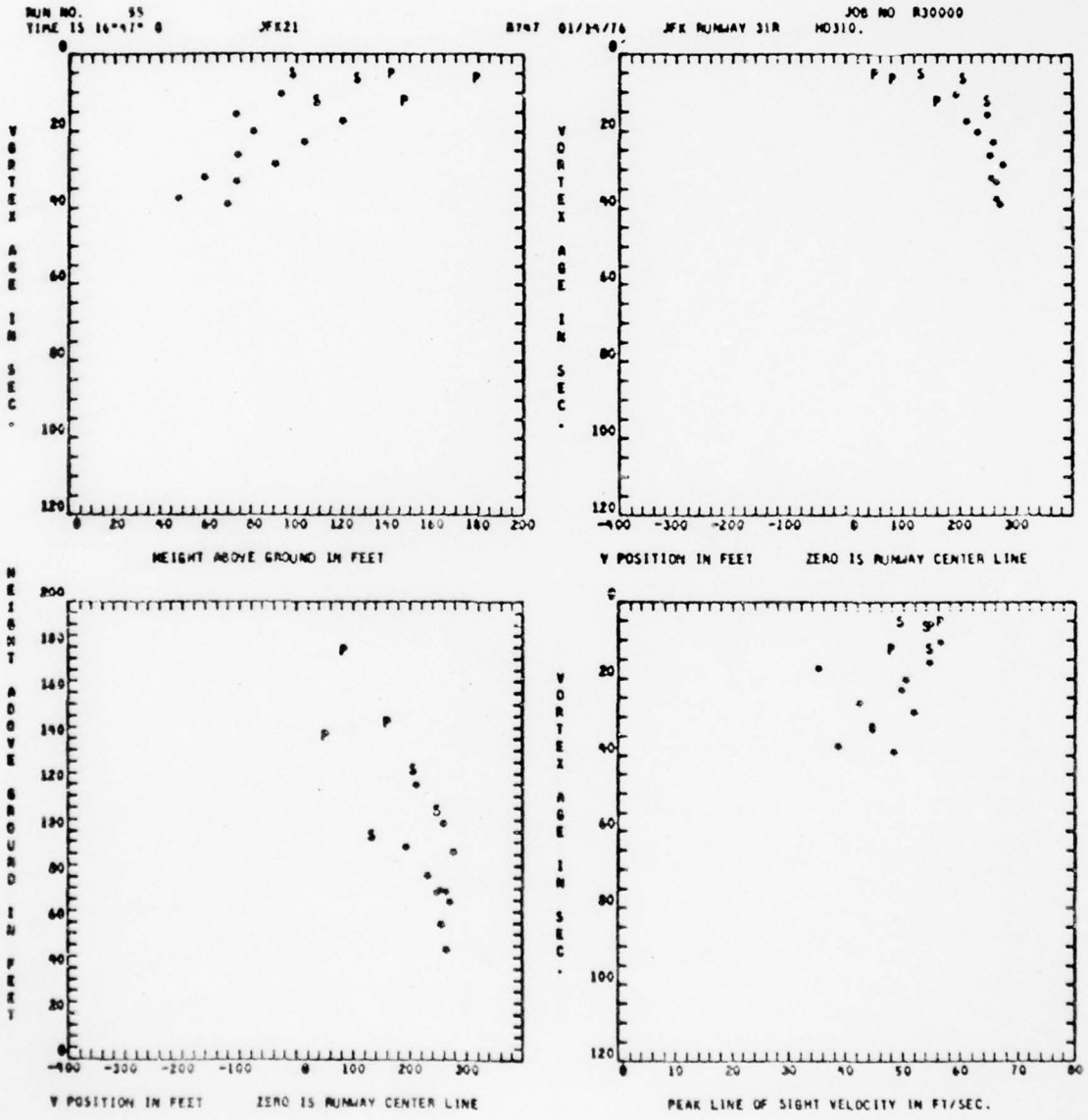

RUN NO. 39
TIME IS 15°46° G
JFK21
B747 01/14/76
JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC


RUN NO. 99
TIME IS 16°25° 0
JFK21
DC10 01/24/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 50
TAPE IS 16*32* 0
JFK21
B707 01/14/76 JFK RUNWAY 31R HD310.
JOB NO A30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 53
TIME IS 16°42' 0
JFK21
B747 01/14/76
JFK RUNWAY 31R
JOB NO RJ0006
HD310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

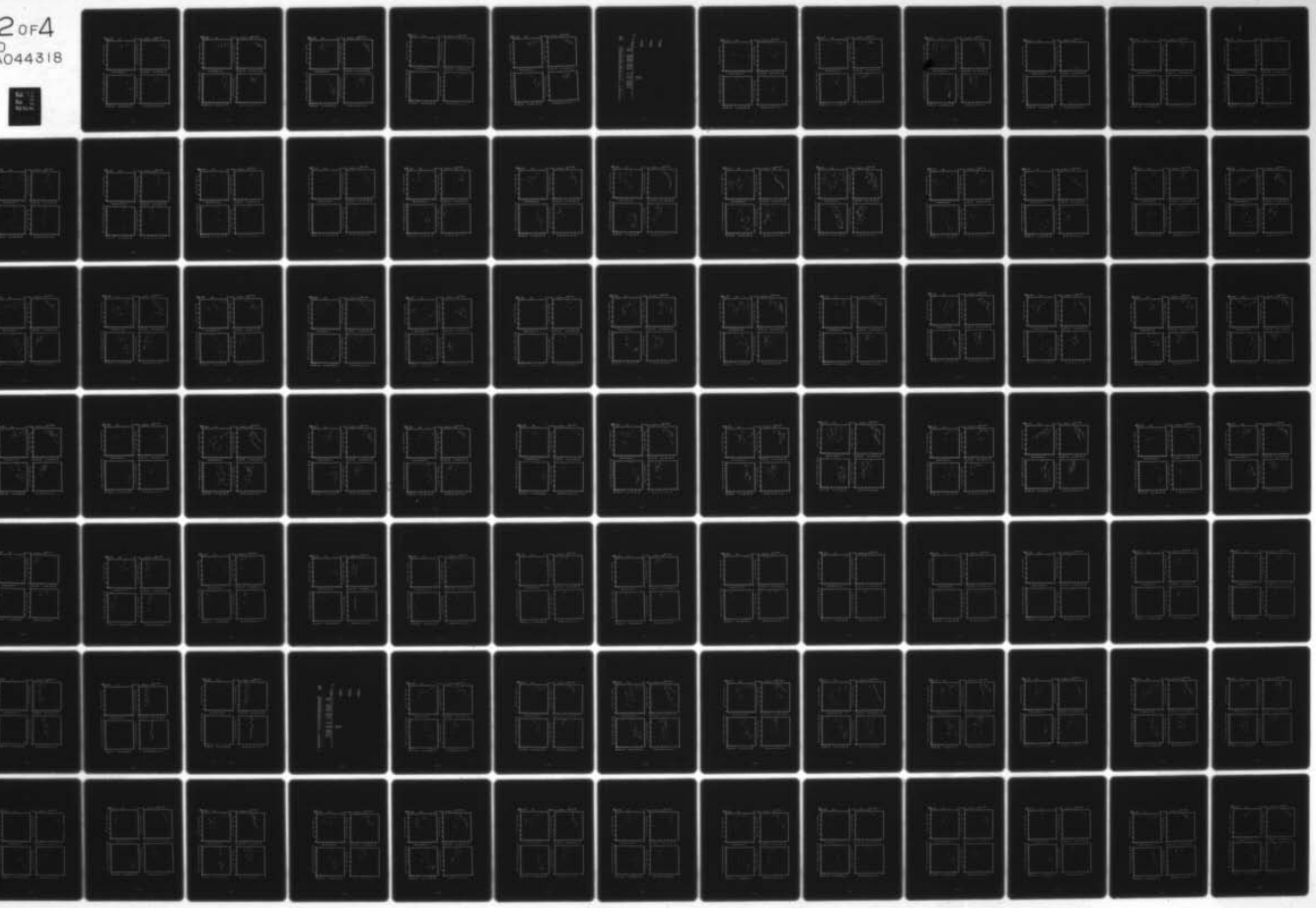

RUN NO. 59
TIME IS 16°49° 0
JFK21
B727 01/19/76 JFK RUNWAY 31R HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

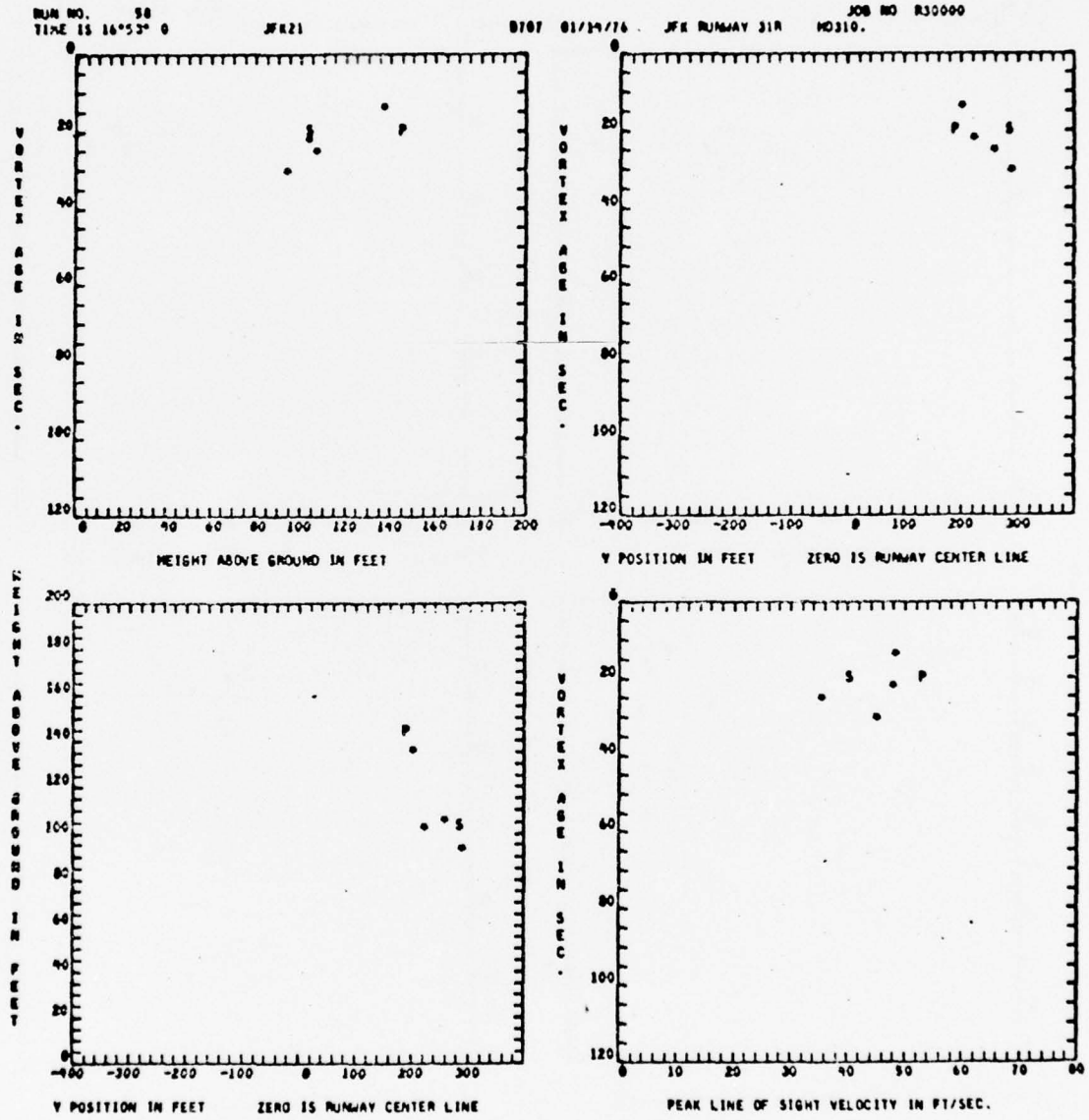

RUN NO. 55
TIME IS 16"47" 8
JFK21
B707 01/24/76
JFK RUNWAY 31R
HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

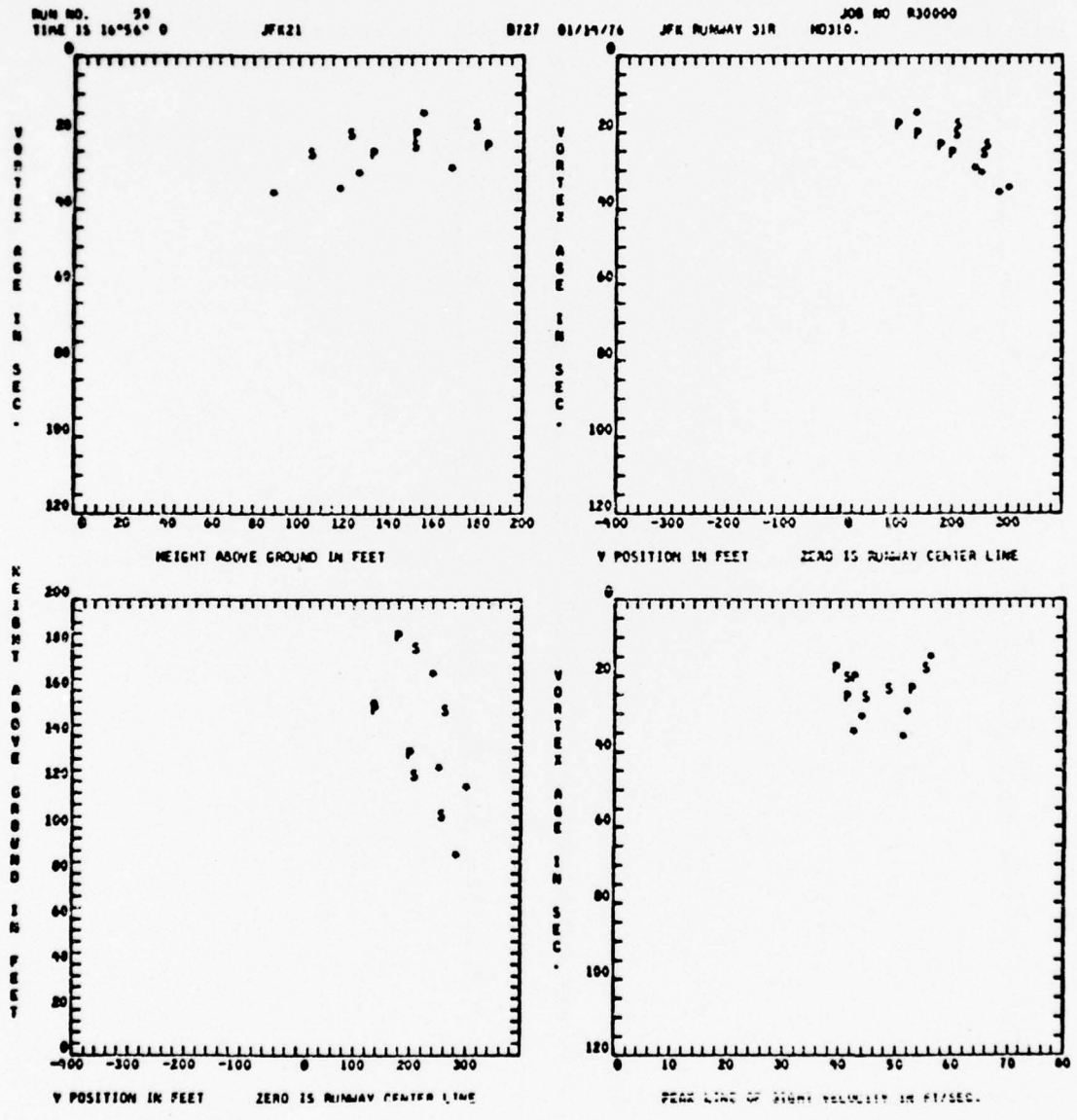
AD-A044 318 LOCKHEED MISSILES AND SPACE CO INC HUNTSVILLE ALA HU--ETC F/G 14/2
MOBILE LASER DOPPLER SYSTEM CHECKOUT AND CALIBRATION. VOLUME II--ETC(U)
JUN 77 M R BRASHEARS, T R LAWRENCE, A D ZALAY DOT-TSC-1098-2

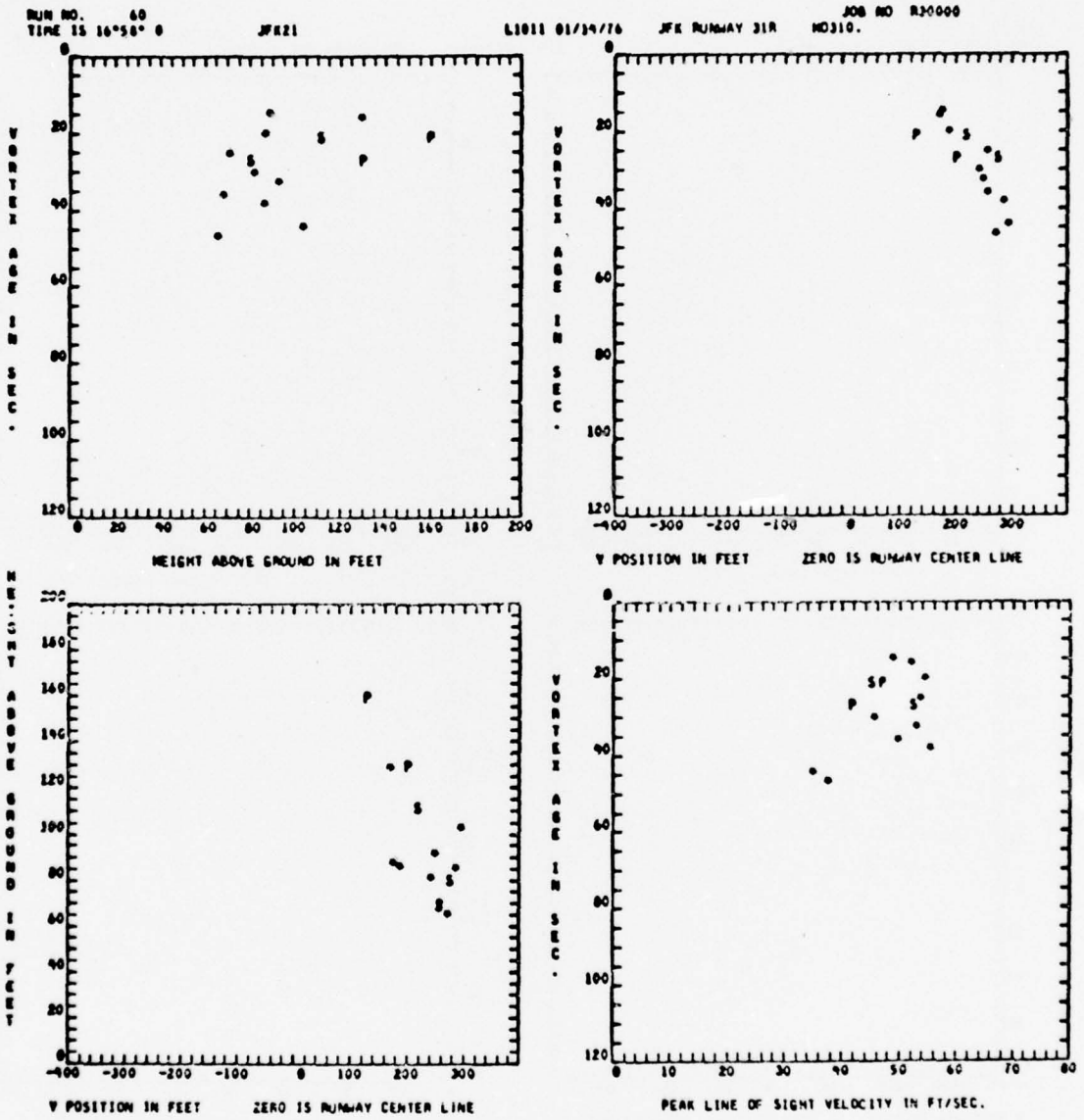
UNCLASSIFIED LMSC-HREC-TR-D497036-2 FAA-RD-77-48.2 NL

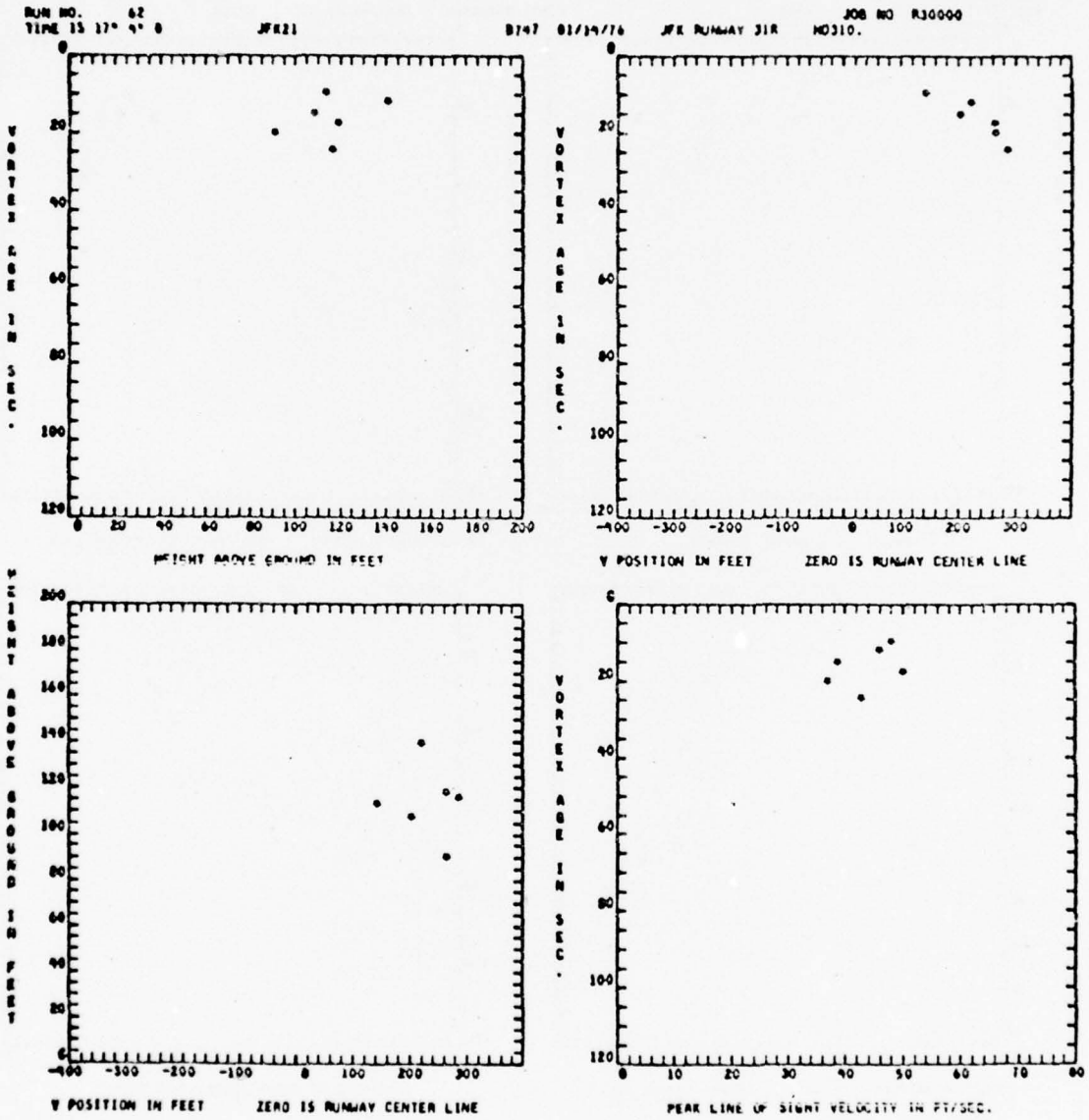
2 OF 4
AD A044318

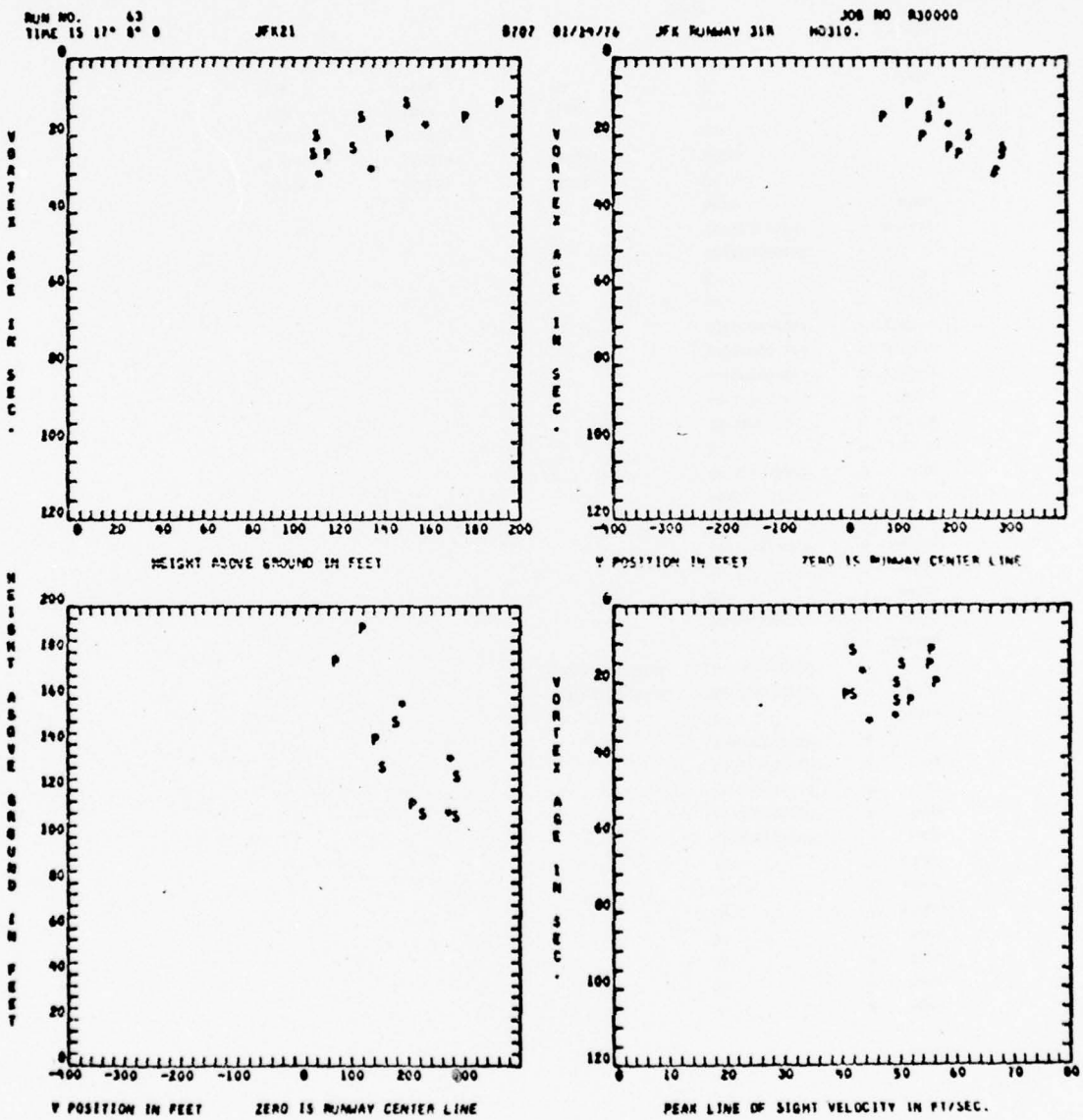



RUN NO. 58
TIME IS 16°53' 0
JFK21
B707 01/29/76 . JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 59
TIME IS 16°56° 0
JFK21
B727 01/14/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF FLIGHT VELOCITY IN FT/SEC.


RUN NO. 60
TIME IS 16°58° 0
JFK21
L1011 01/19/76
JFK RUNWAY 31R
HD310.
JOB NO R20000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 62
TIME 15 17° 9° 0
JFK21
B747 01/19/76
JFK RUNWAY 31R
HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 63
TIME IS 17° 8° 0
JFK21
B707 01/29/76
JFK RUNWAY 31R
HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

JFK22

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IGROUP  =              +0
ISFILE  =              +1,            +1,            +15,           +15,
                      +44,           +44,            +65,           +65,
                      +83,           +83,          +1000,         +1000,
                    +1000,         +1000,          +1000,         +1000,
                    +1000,         +1000,          +1000,         +1000
NRUN    =            +104
ILASER  =    .70000000E+01
ILASCN  =    .00000000E+00
INTVEL  =              +2
NPSUF   =              +4
APERCT  =    .10000000E+00
BPERCT  =    .10000000E+00
CPERCT  =    .50000000E+00
DPERCT  =    .31415927E+00
EPERCT  =    .15000000E+01
NOISEF  =              +0
ADJ1    =    .00000000E+00
ANGSW   =    .00000000E+00
WANGLE  =    .00000000E+00
WINDHP  =    .80000000E+03
IFLIP   =              +3
ISINE   =              +2
EDIT    =.   .20000000E+00
MOVAVE  =              +5
YLIM    =    .00000000E+00,   .00000000E+00
ZLIM    =    .00000000E+00,   .00000000E+00
ISCALE  =              +1
YR      =    .40000000E+03
YL      =   -.40000000E+03
ZT      =    .20000000E+03
TMAX    =    .12000000E+03
VMAX    =    .80000000E+02
NSPLT   =             +12
JPROF   =              +1
IMULT   =              +0
IOP1    =              +2
IOP2    =              +2
IOP3    =              +2
IOP4    =              +1

$END
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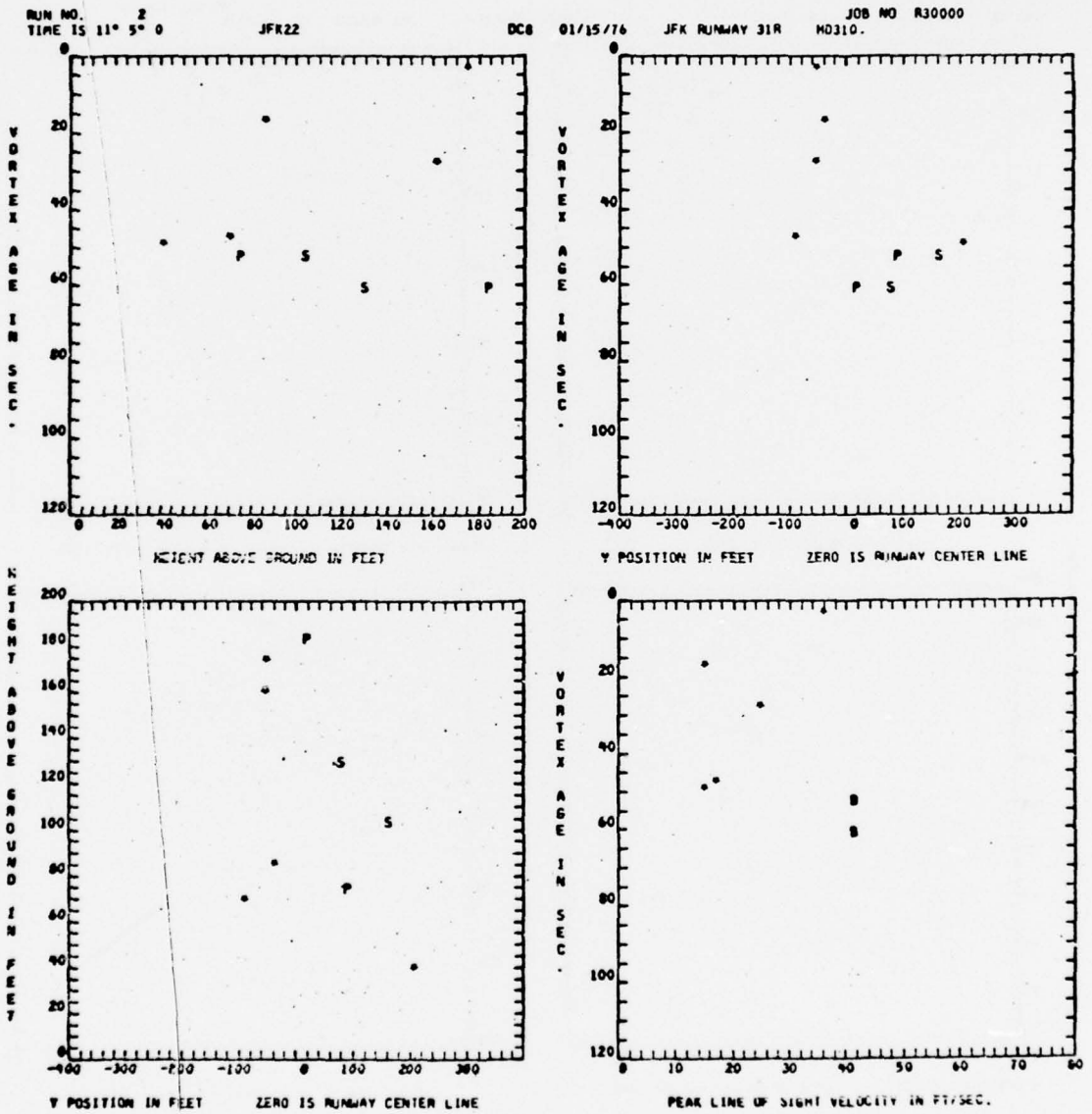
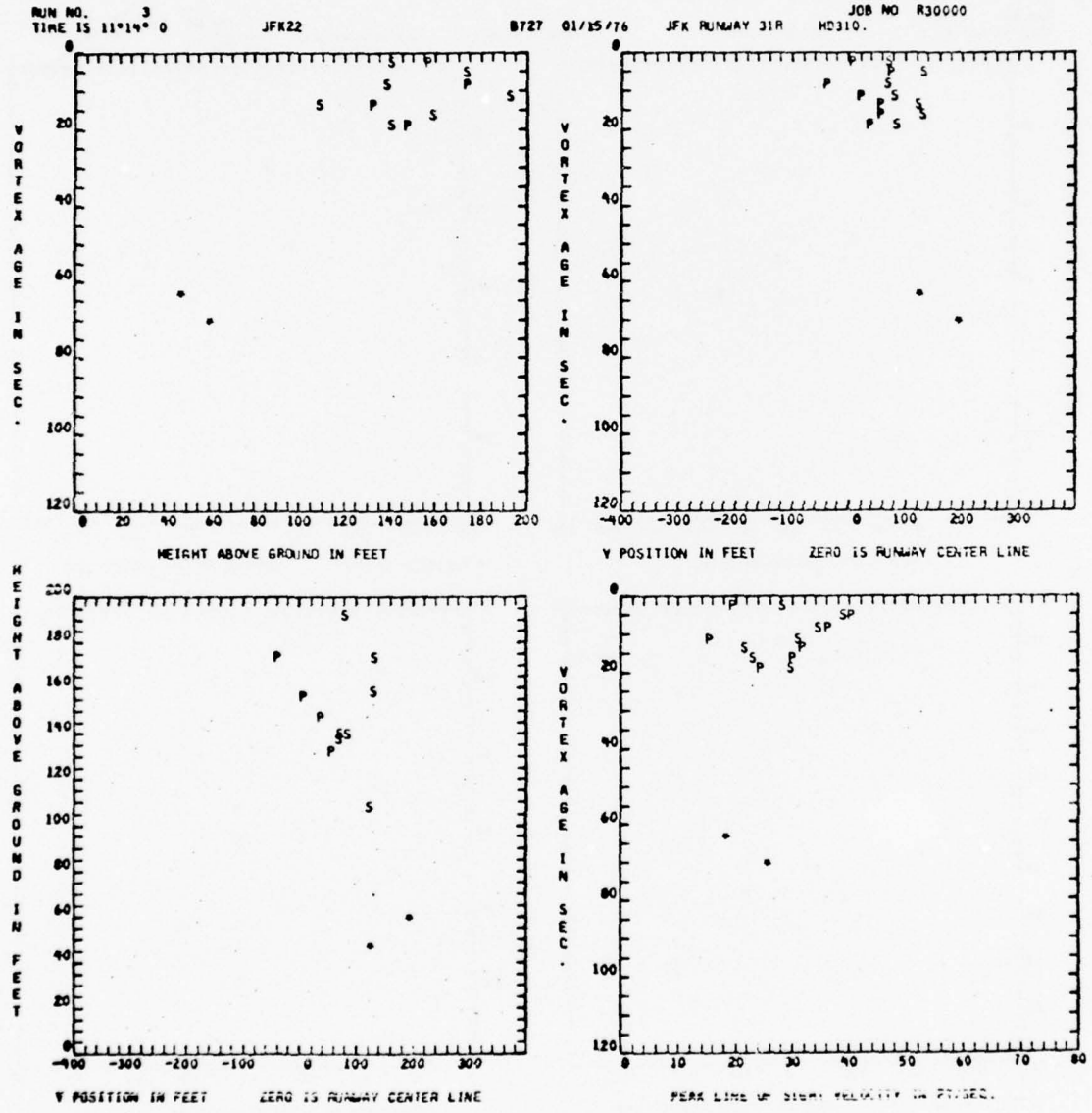
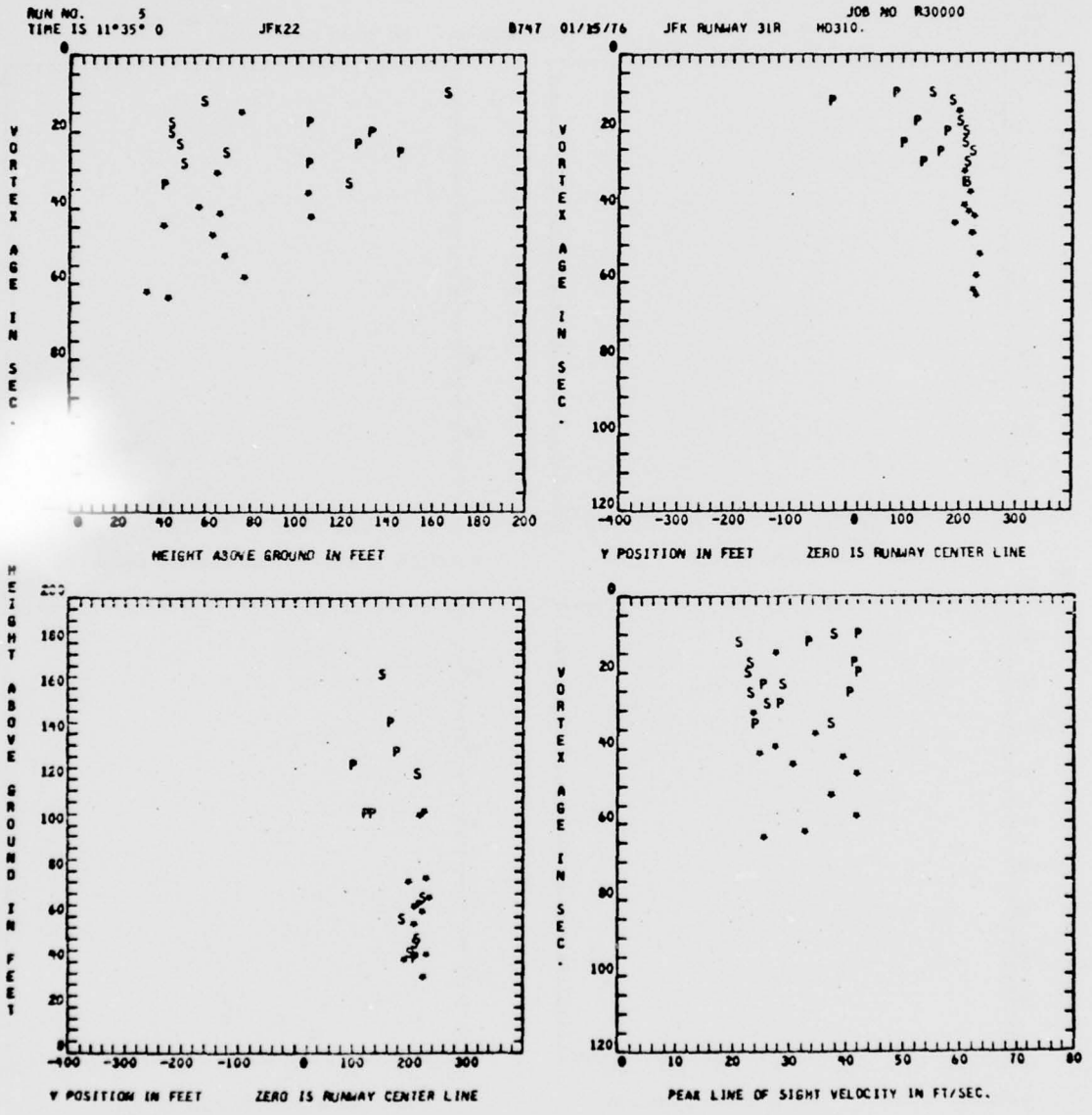
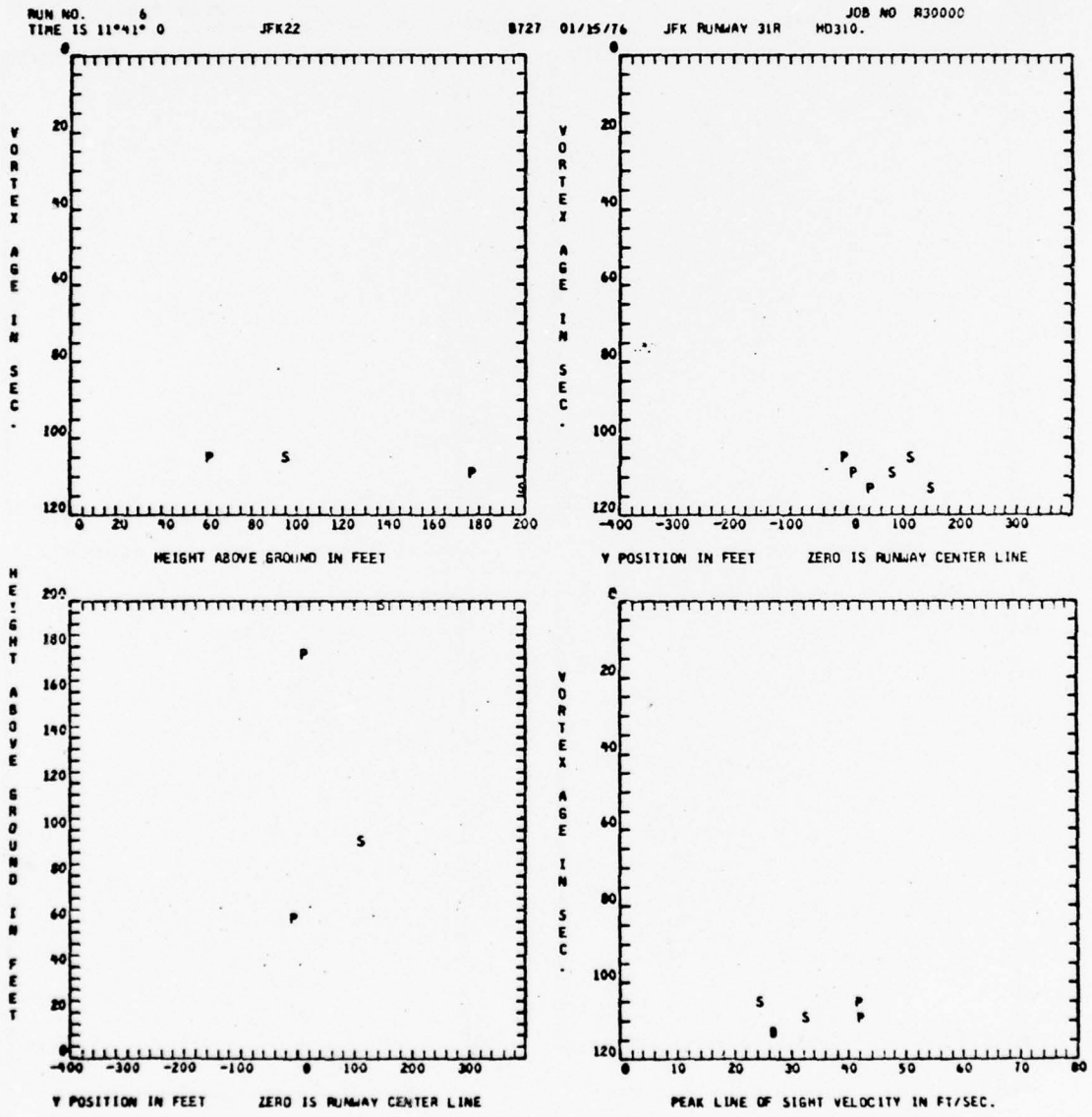
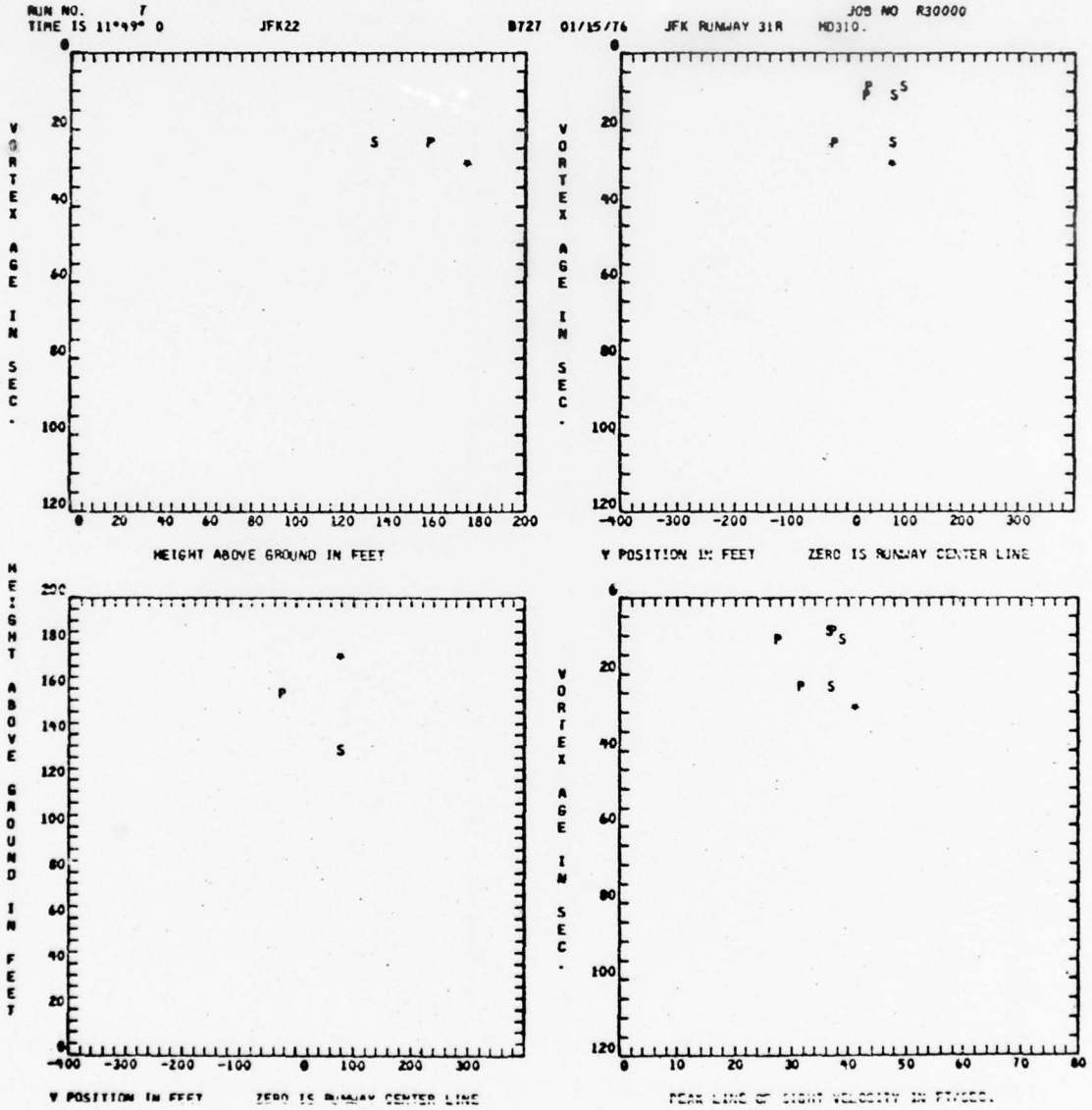
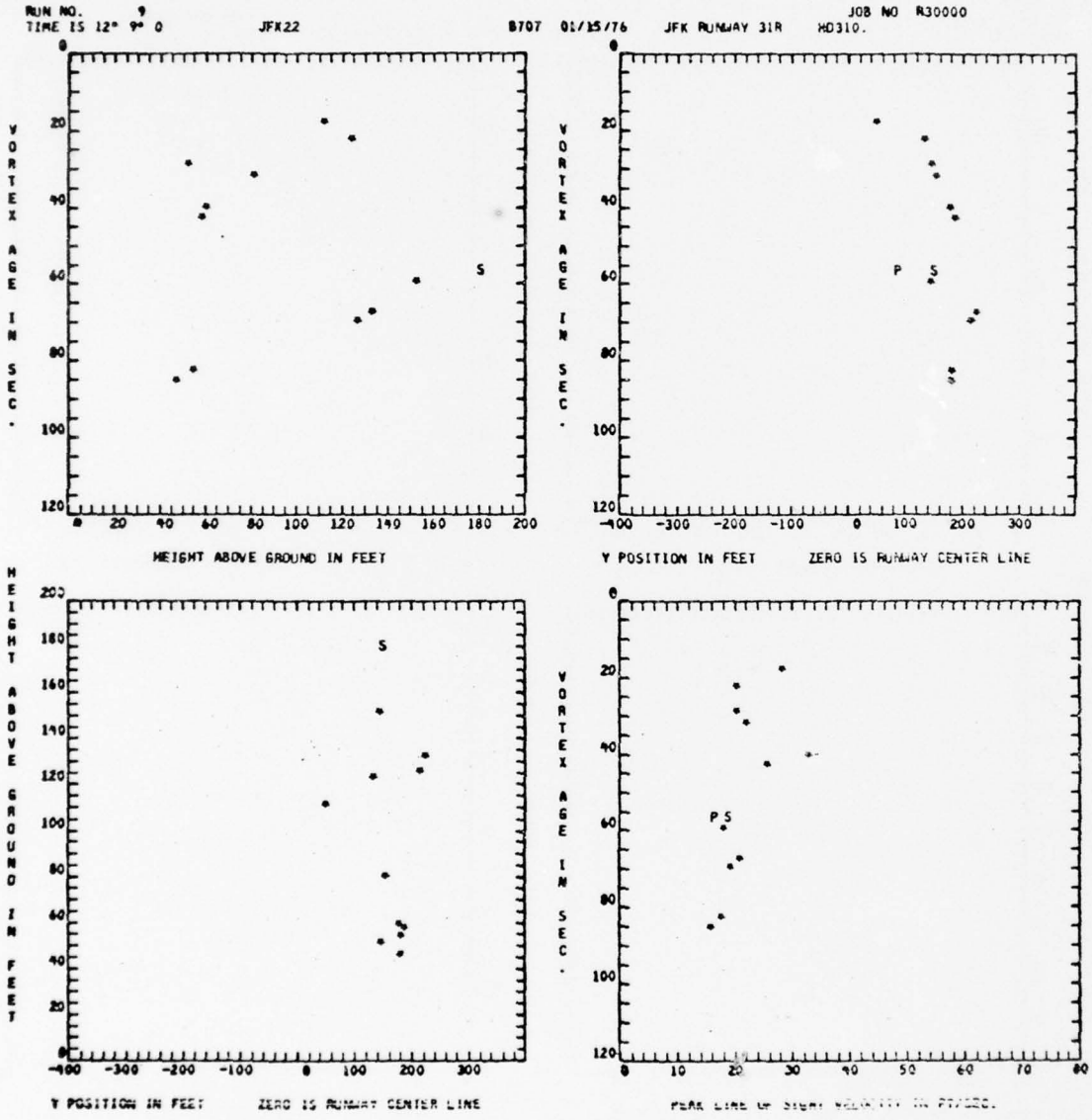

RUN NO. 2
TIME IS 11° 5° 0
JFK22
DC8
01/15/76
JFK RUNWAY 31R
H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

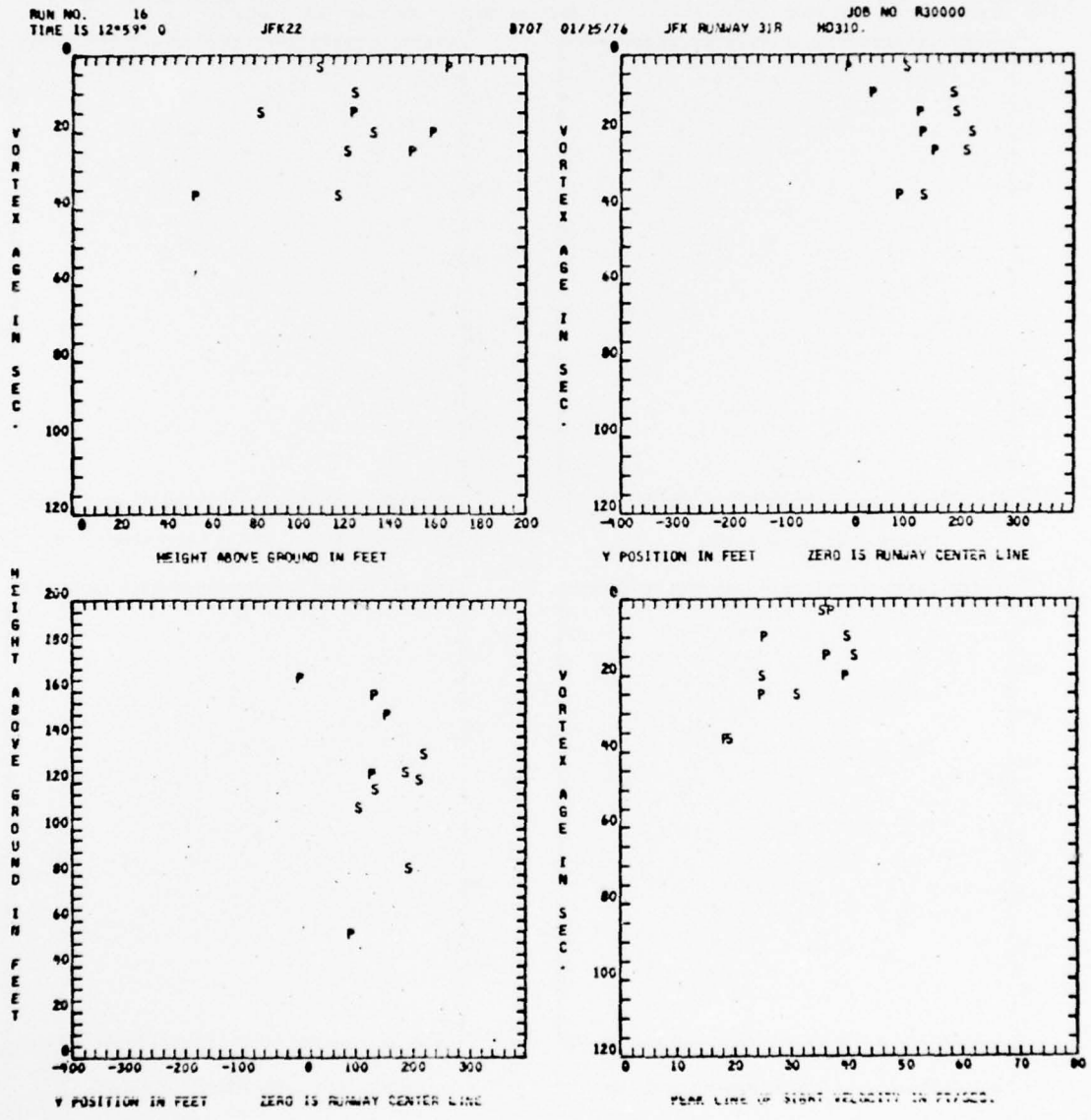

RUN NO. 3
TIME IS 11°14' 0
JFK22
B727 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

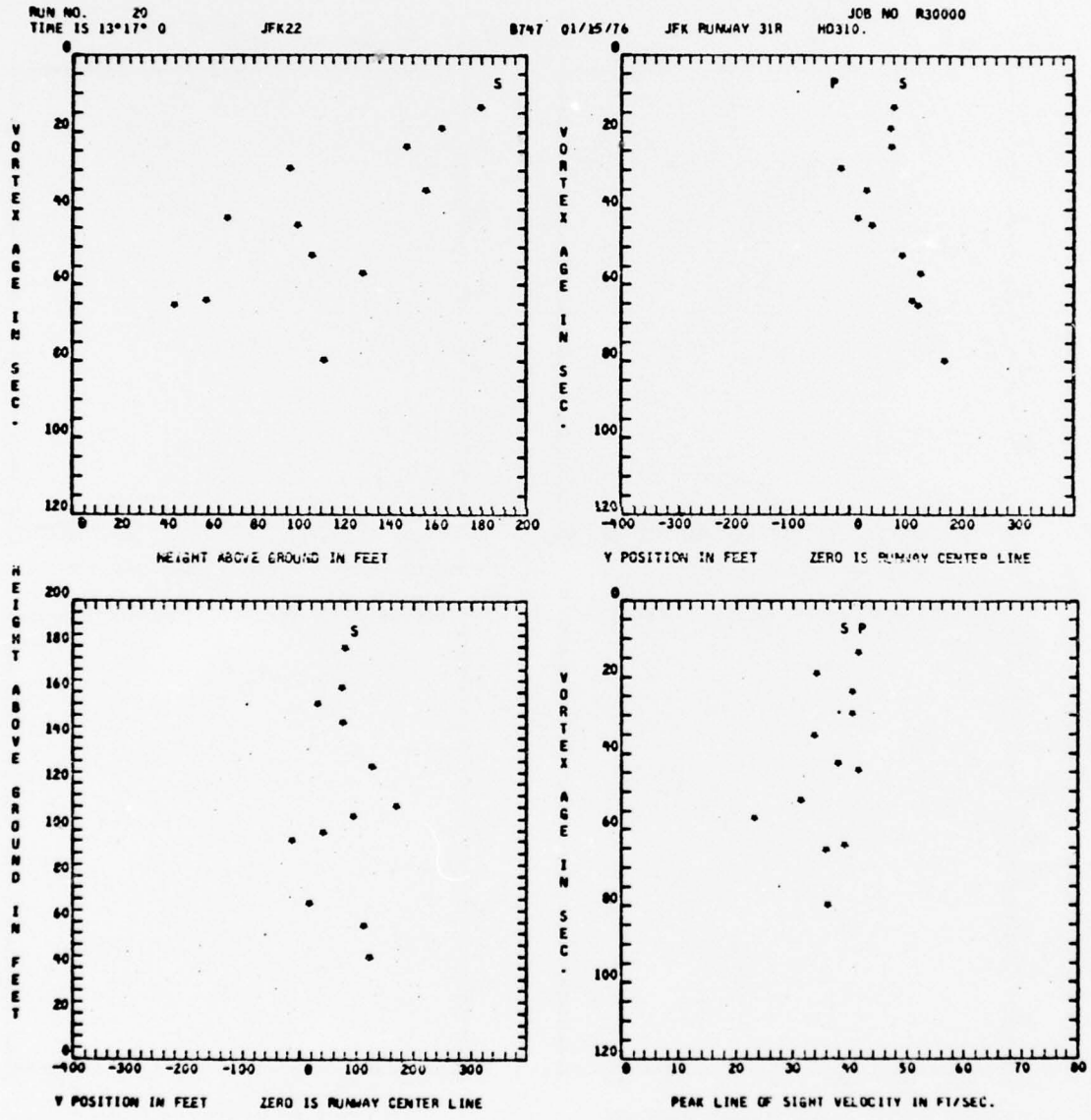

RUN NO. 5
TIME IS 11°35° 0
JFK22
B747 01/15/76 JFK RUNWAY 31R
JOB NO R30000
HO310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

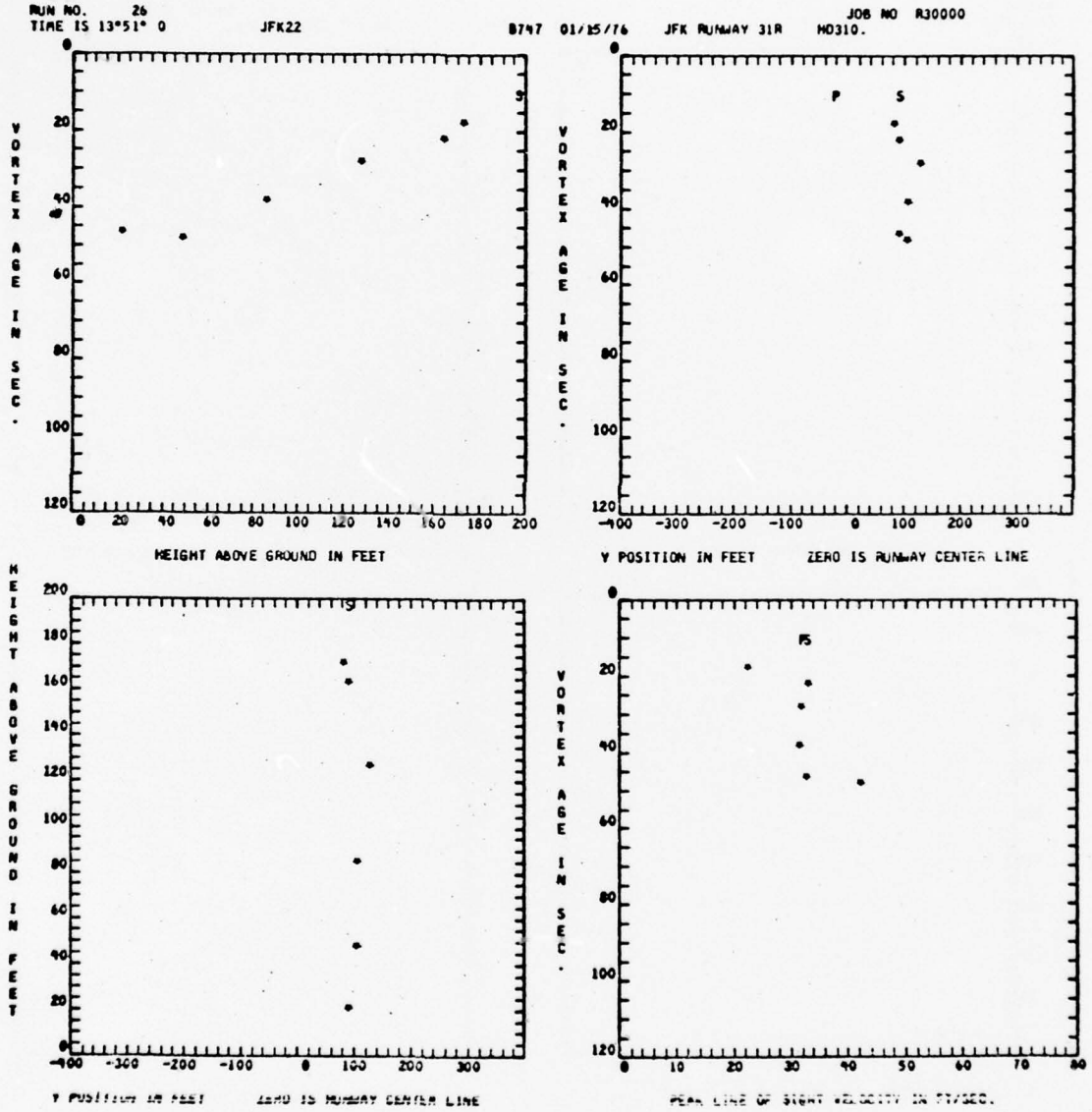

RUN NO. 6
TIME IS 11°41° 0
JFK22
B727 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

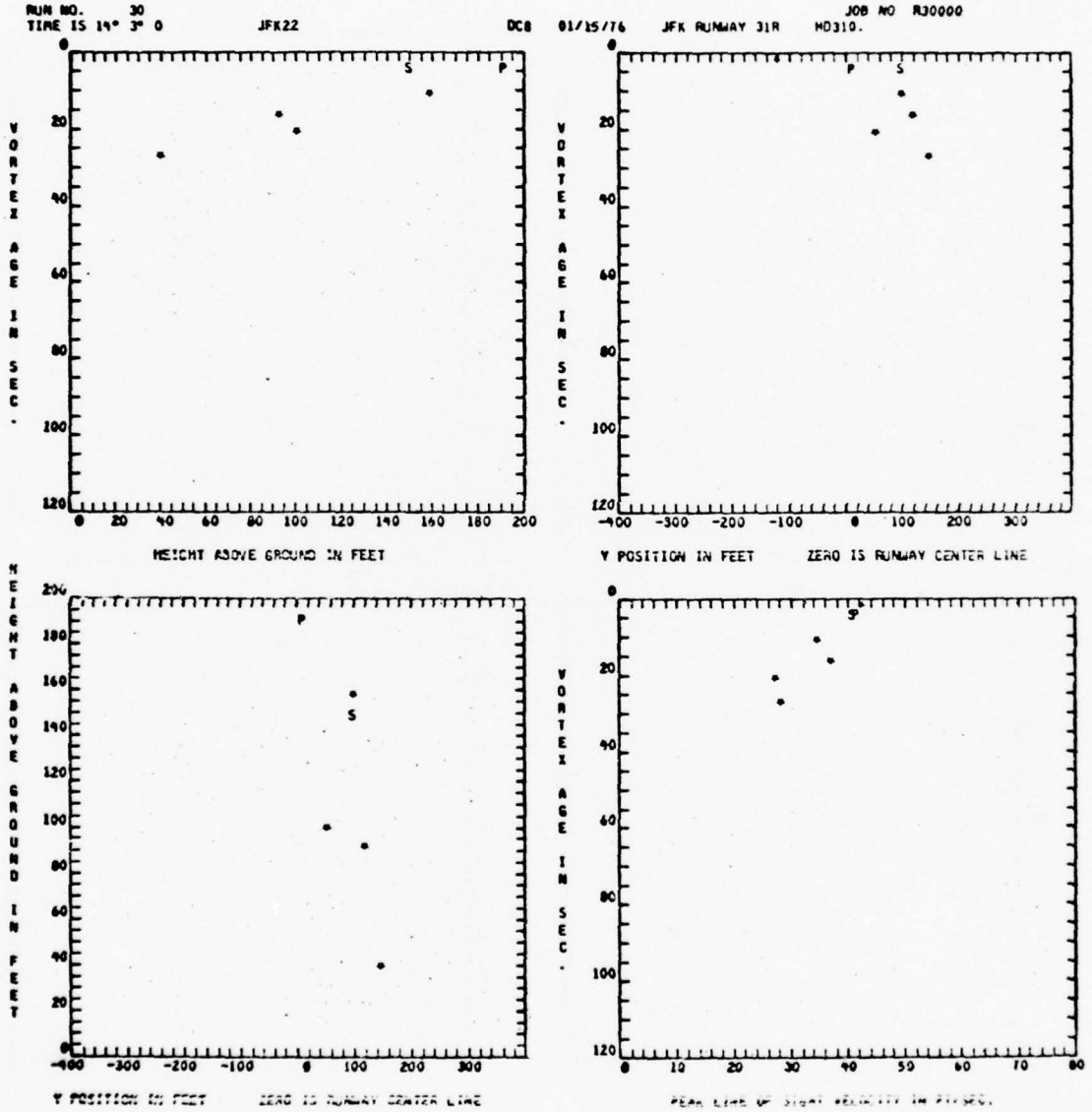

RUN NO. 7
TIME IS 11°49° 0
JFK22
B727 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

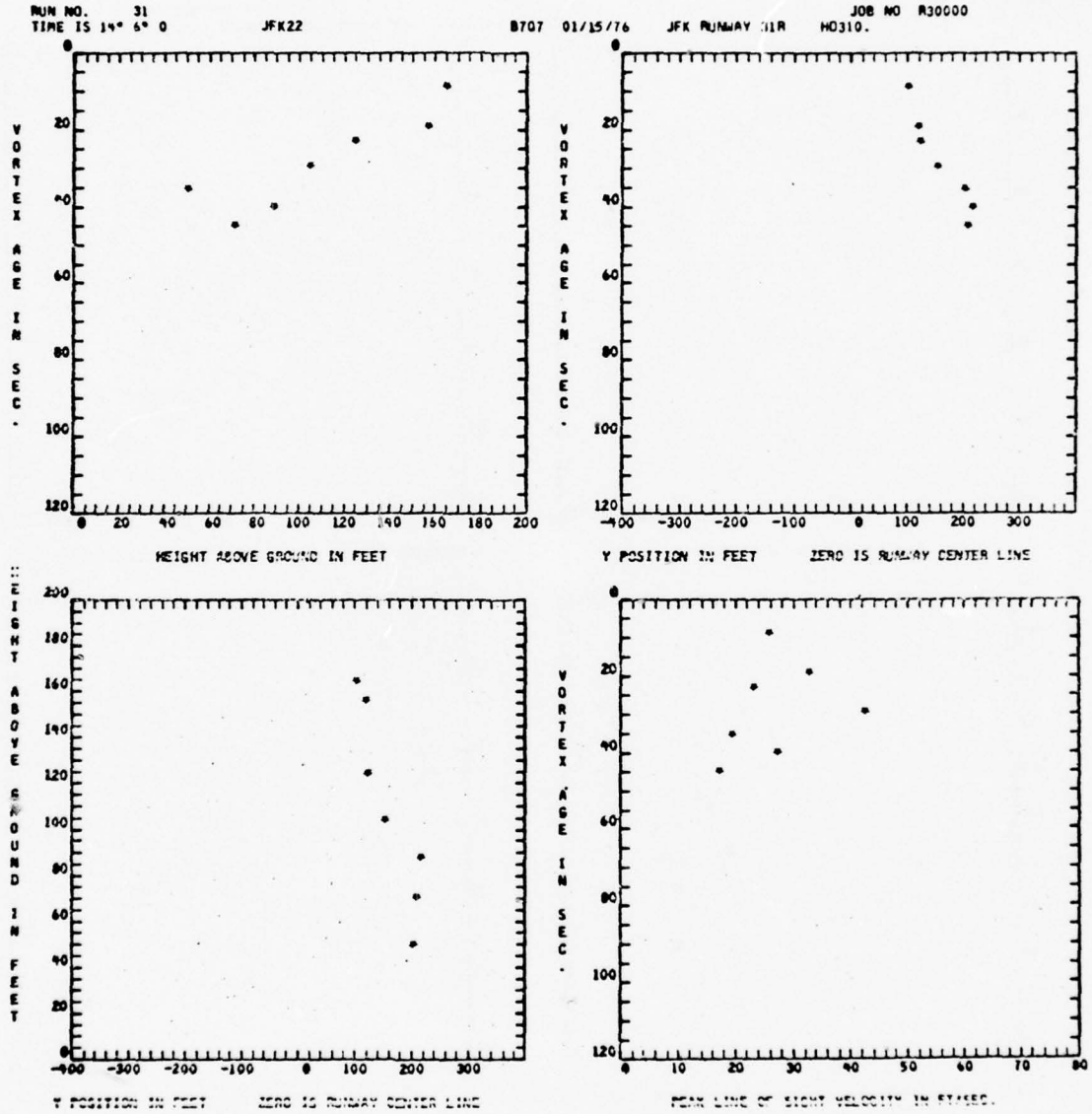

RUN NO. 9
TIME IS 12h 9m 0s
JFK22
B707 01/15/76
JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
P
S

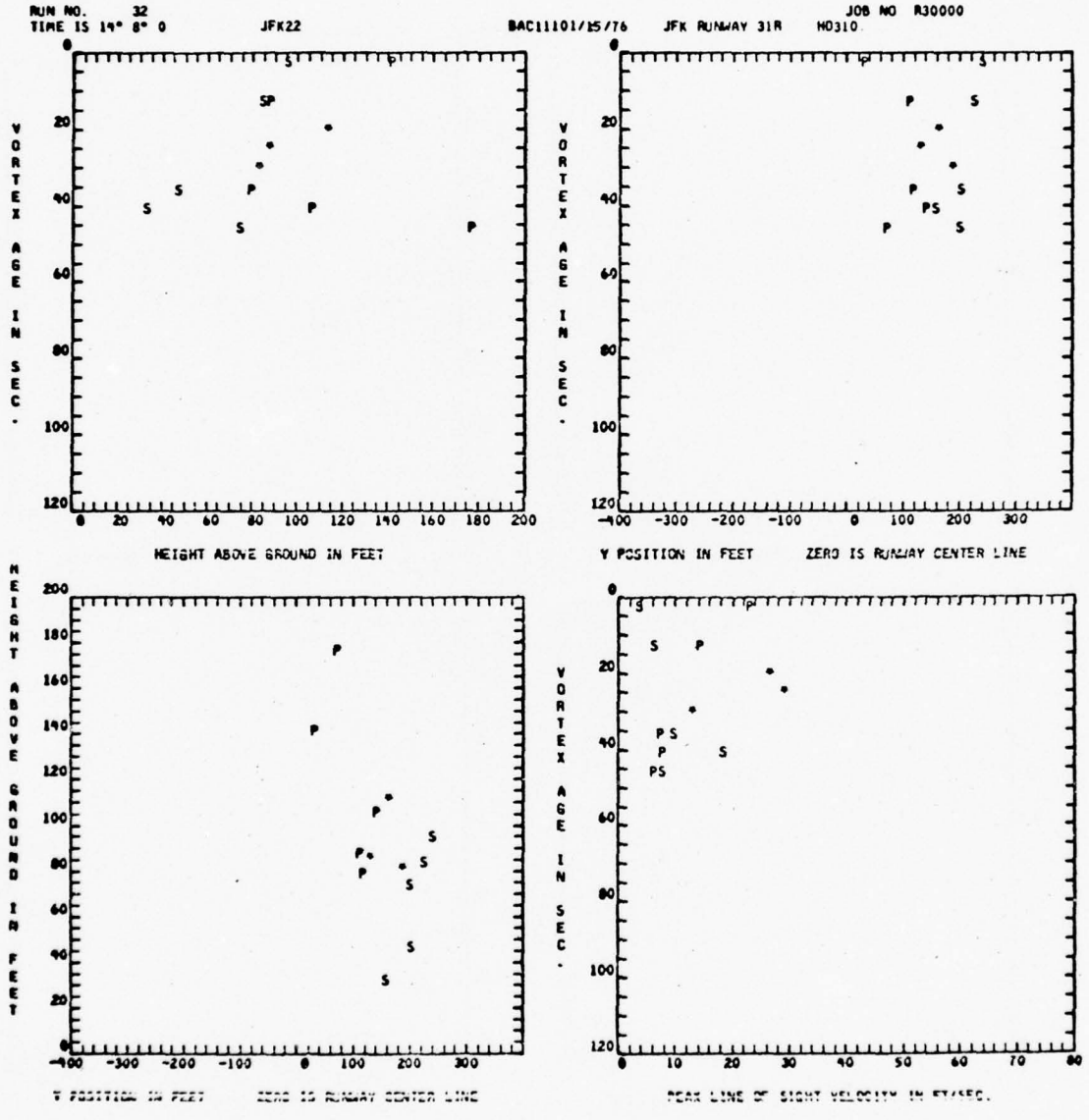

RUN NO. 16
TIME IS 12*59* 0
JFK22
B707 01/15/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE

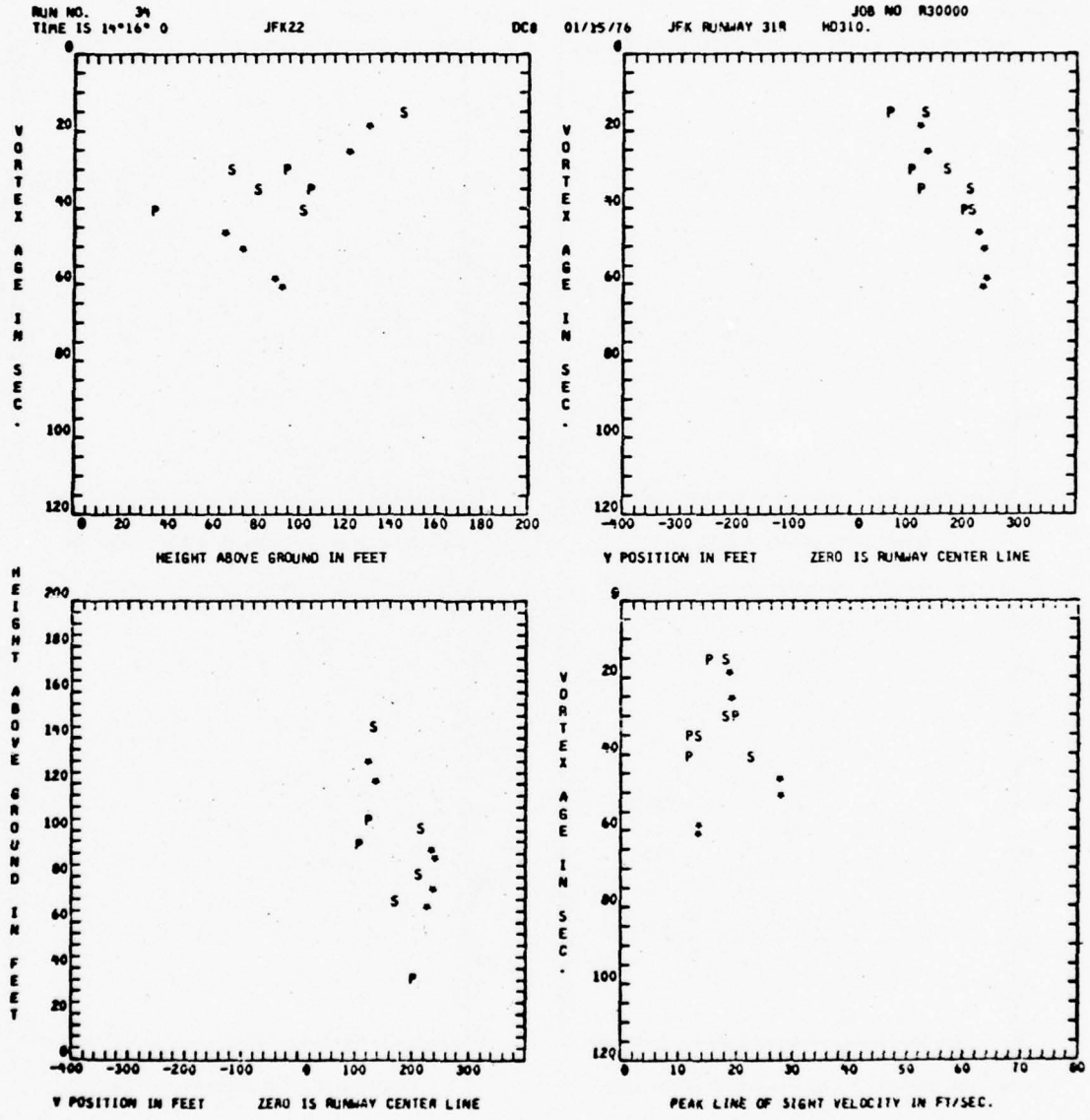

RUN NO. 20
TIME IS 13°17° 0
JFK22
B747 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.
S
P

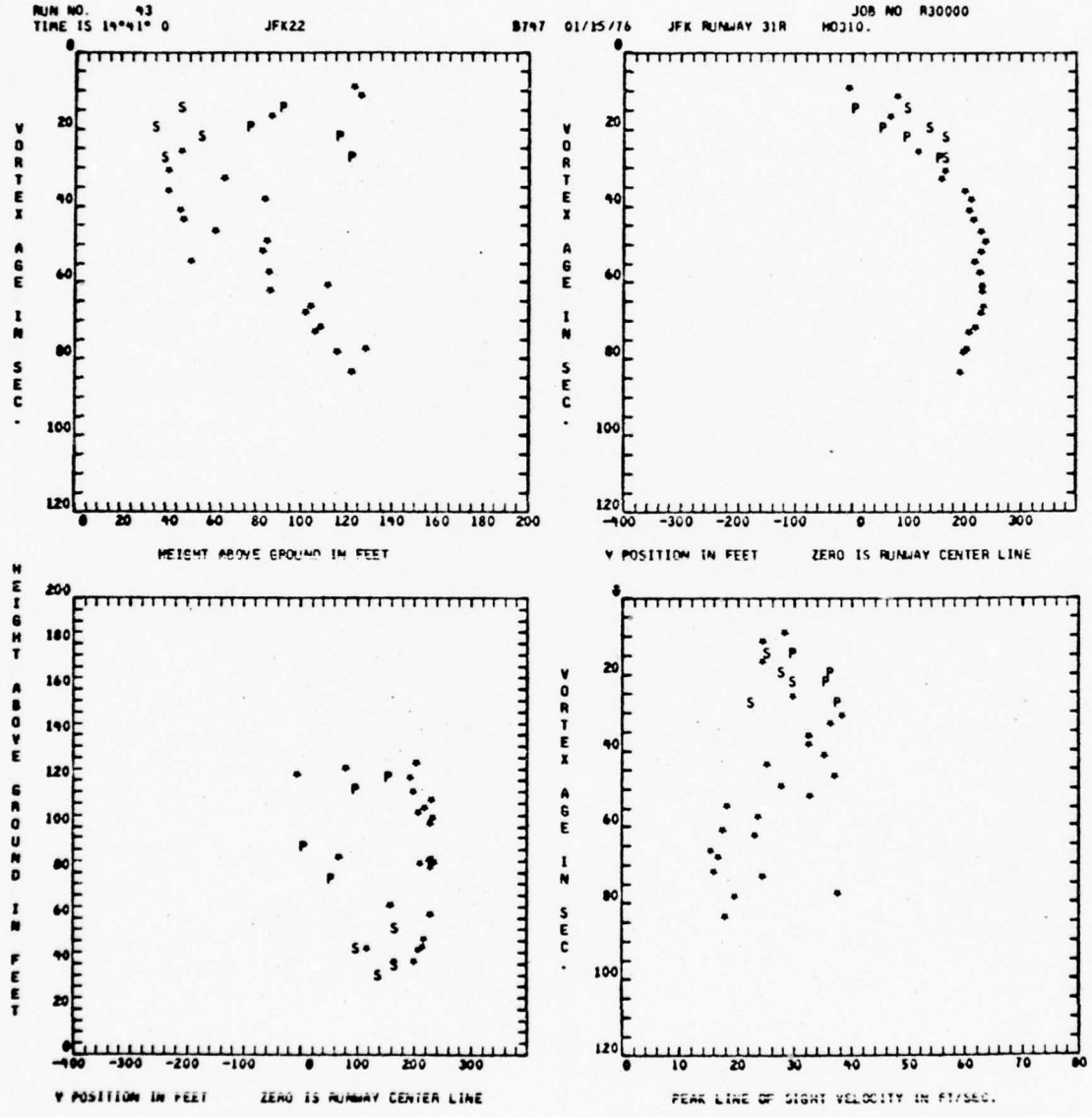

RUN NO. 26
TIME IS 13*51* 0
JFK22
B747 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
P
S
F5

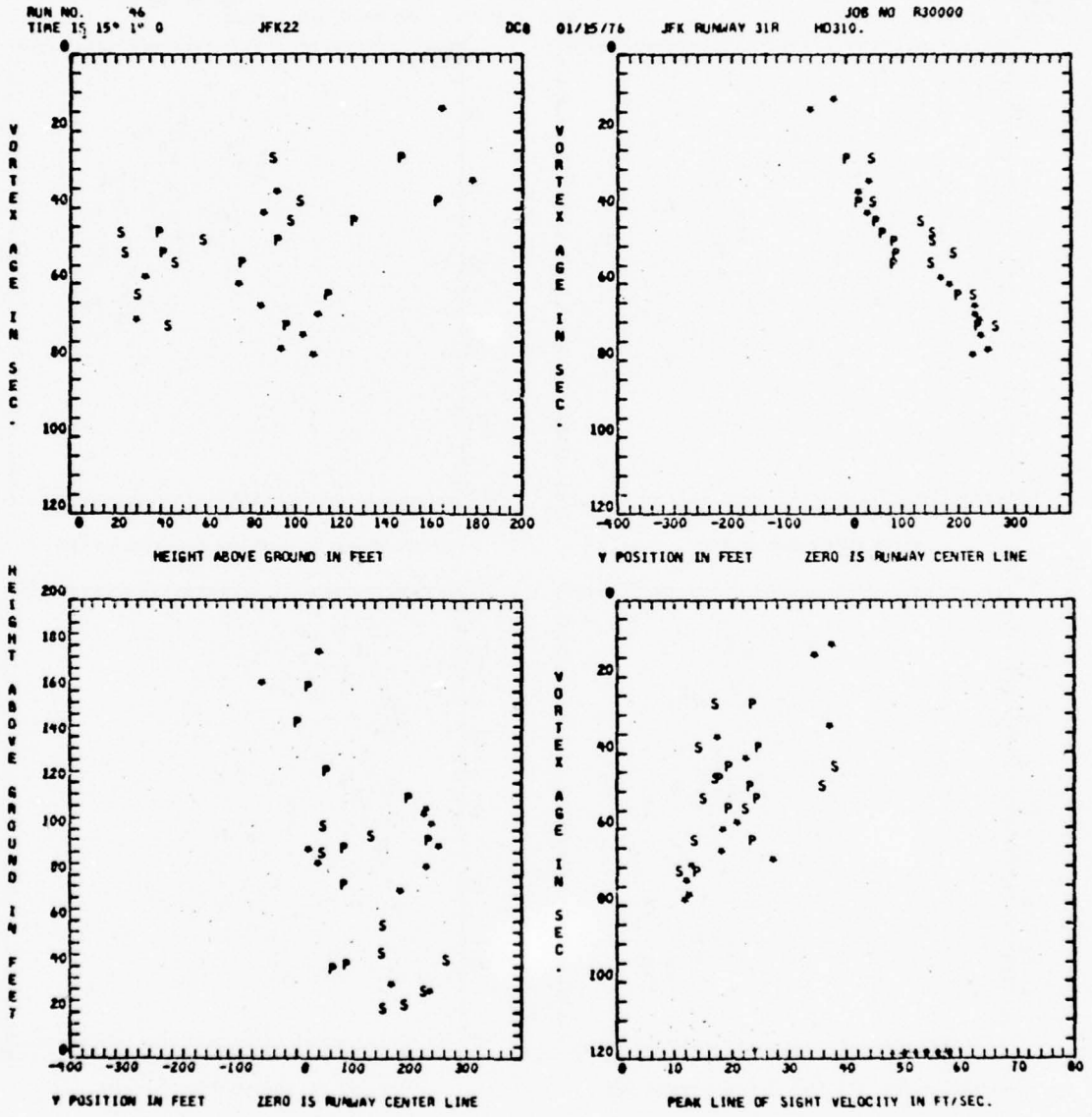

RUN NO. 30
TIME IS 14° 3' 0
JFK22
DC8
01/15/76
JFK RUNWAY 31R
HD310.
JOB NO RJ0000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

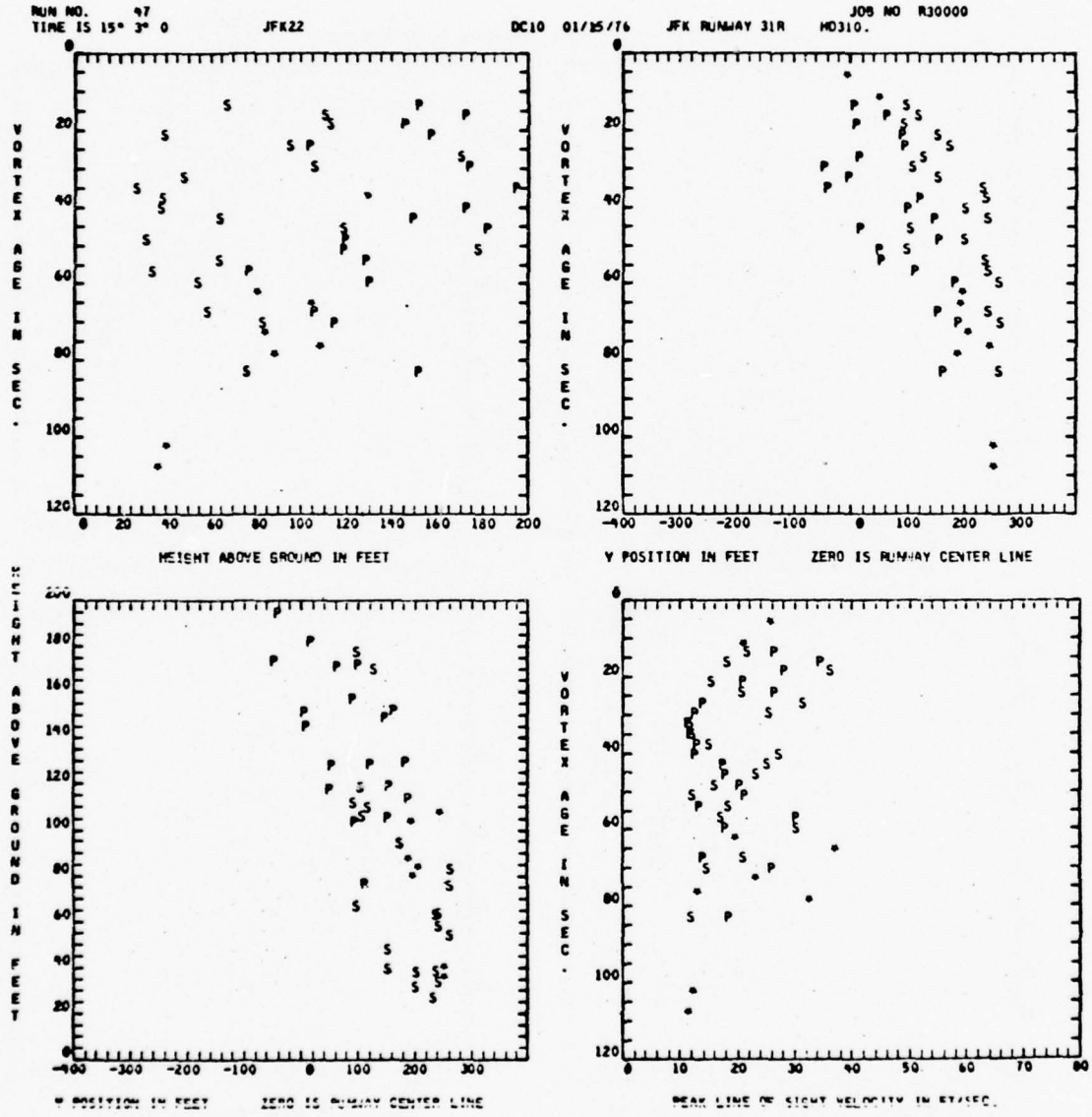

RUN NO. 31
TIME IS 14° 6° 0
JFK22
B707 01/15/76
JFK RUNWAY 31R
HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

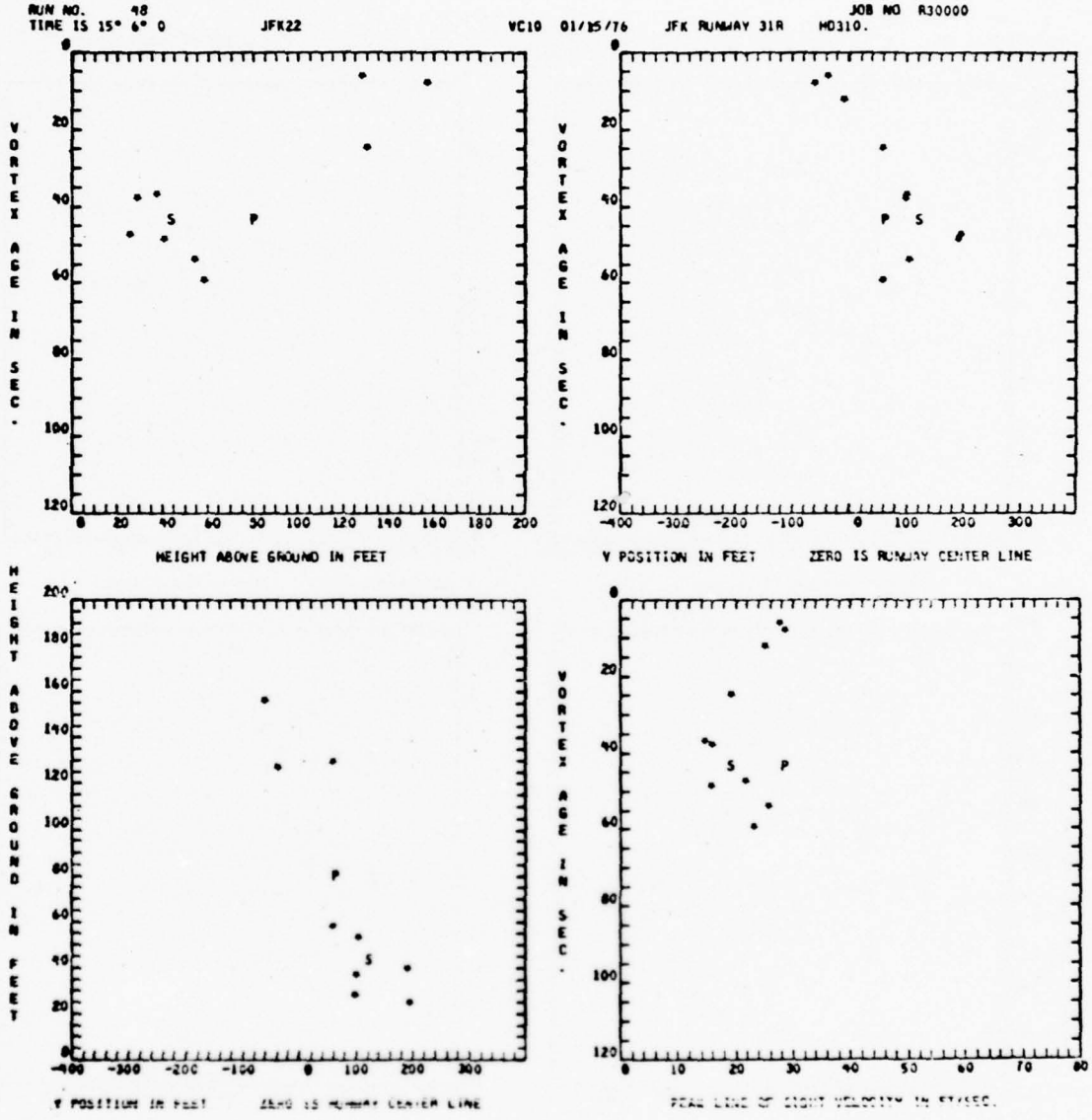

RUN NO. 32
TIME IS 14° 8° 0
JFK22
BAC11101/15/76
JFK RUNWAY 31R
H0310
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

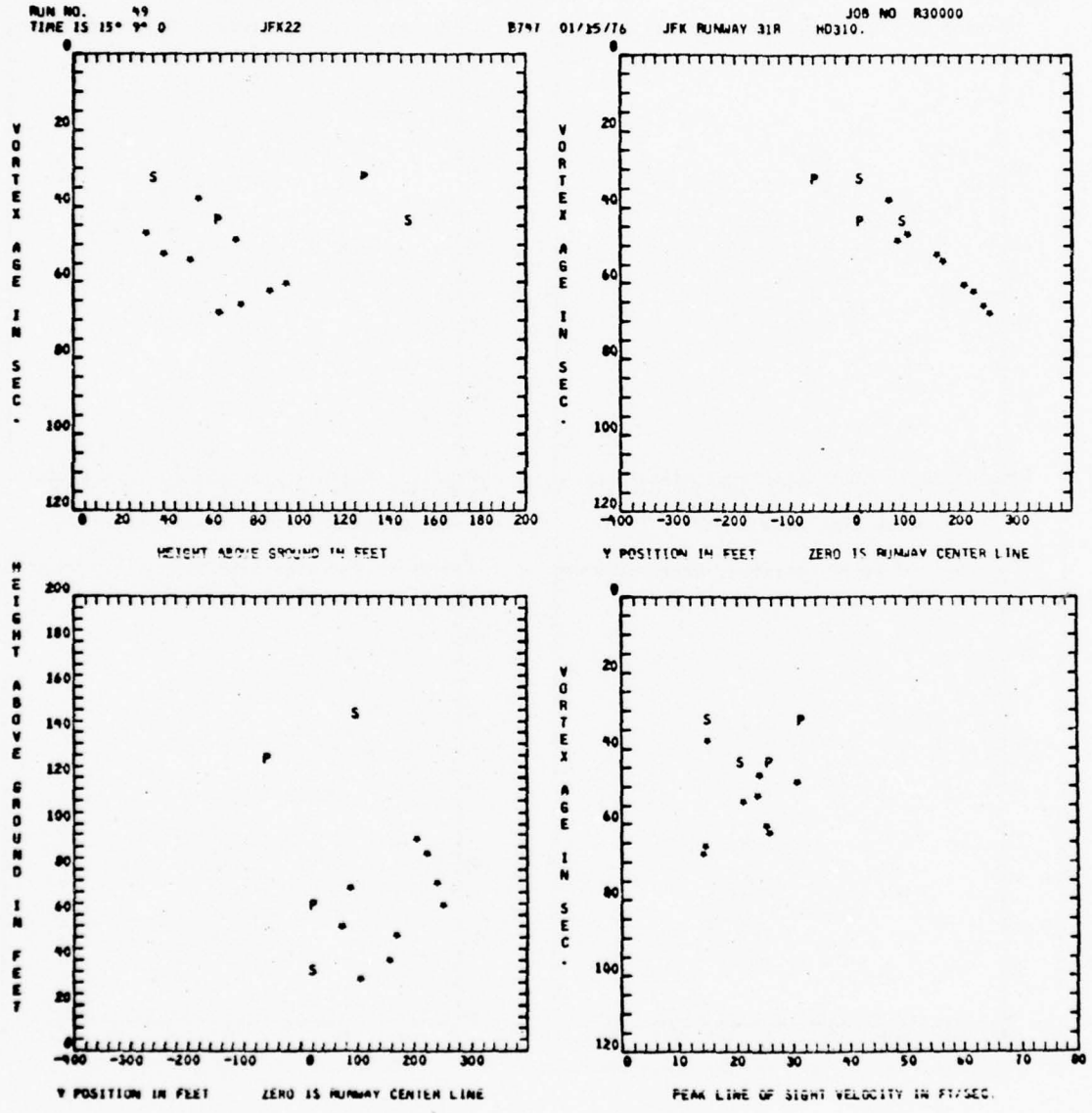

RUN NO. 34
TIME IS 14°16° 0
JFK22
DC8
01/15/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

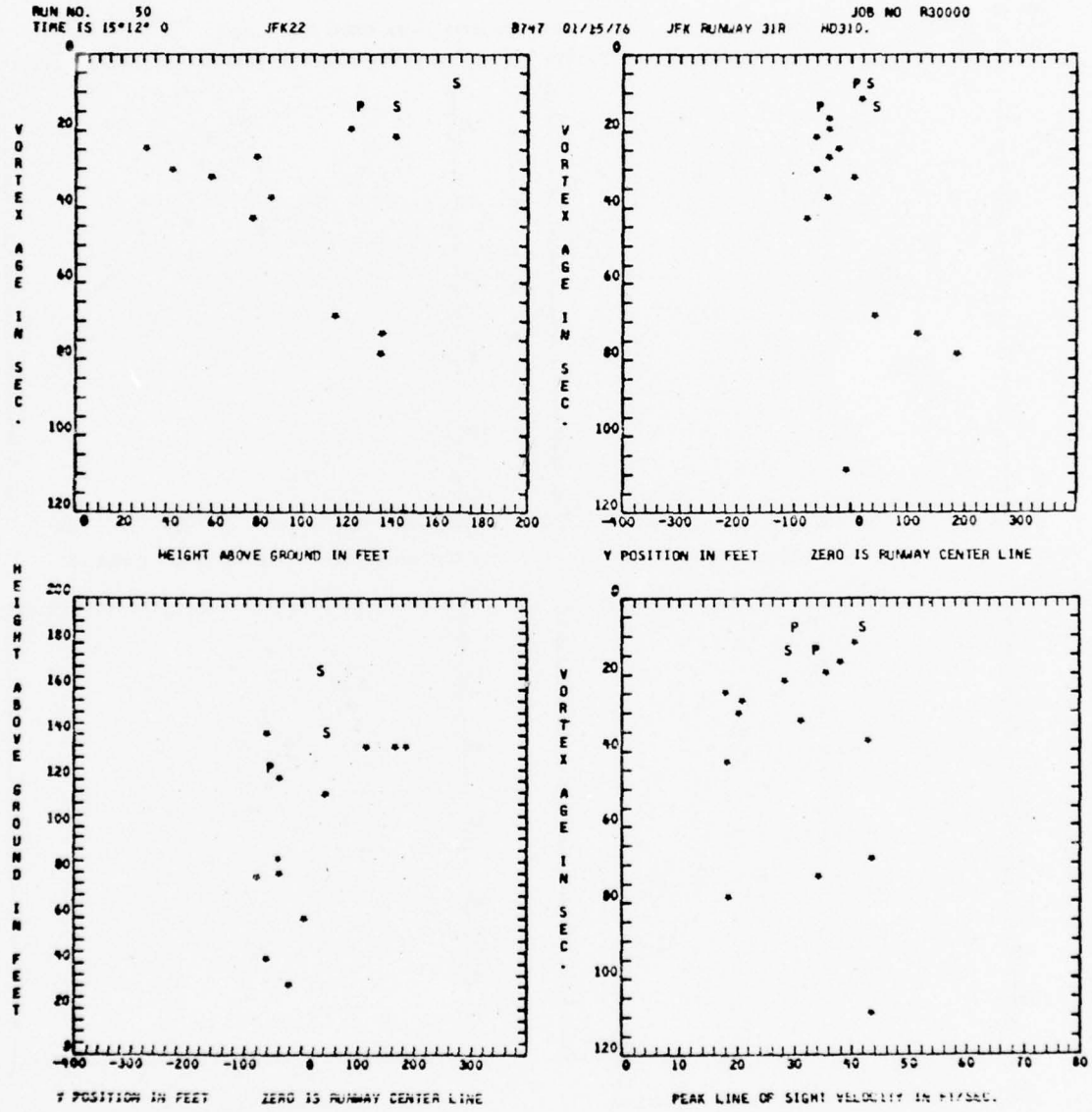

RUN NO. 93
TIME IS 14°41° 0
JFK22
B747 01/15/76 JFK RUNWAY 31R
JOB NO R30000
H0310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

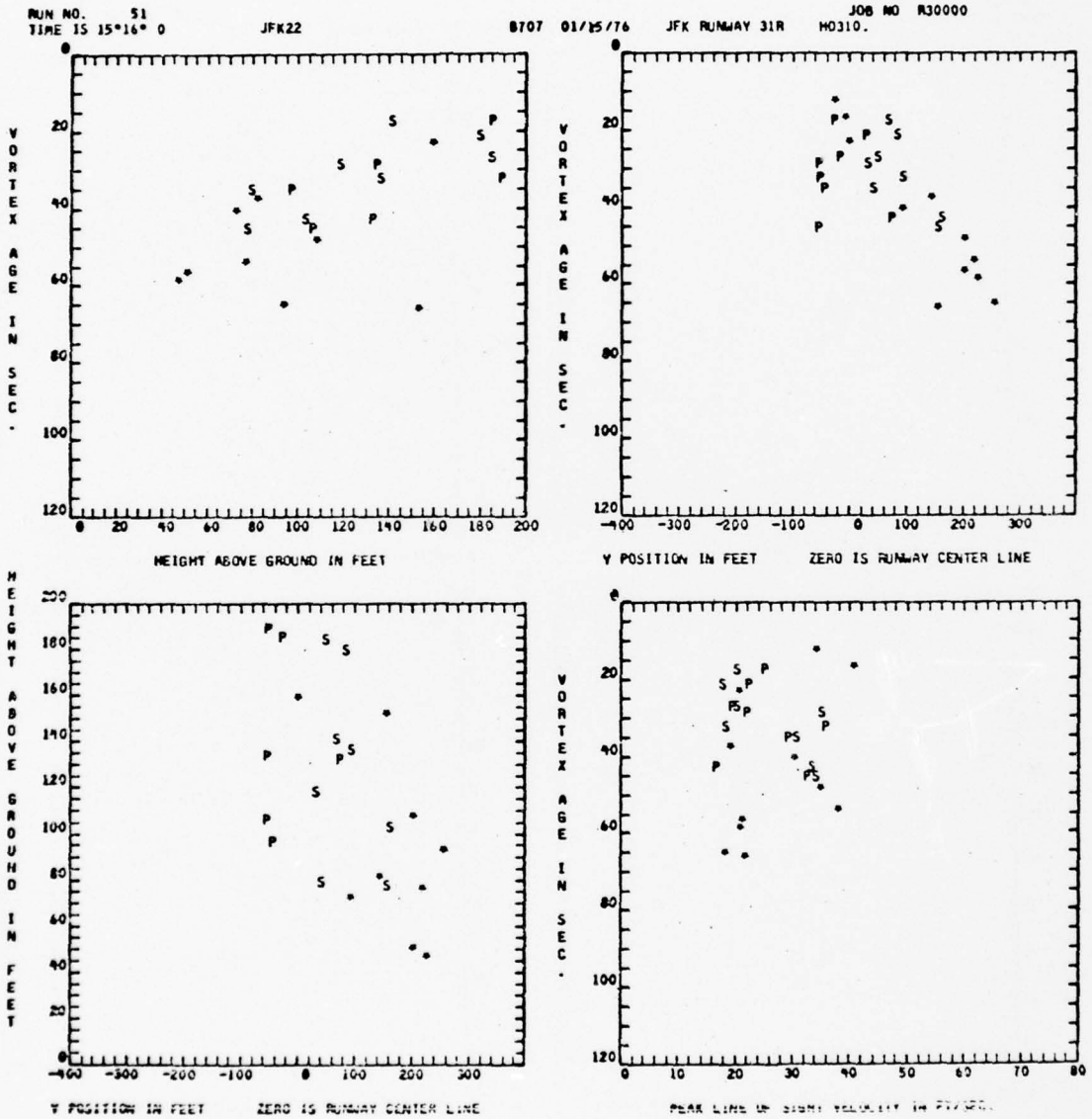

RUN NO. 46
TIME 15 15' 1" 0
JFK22
DC8
01/15/76
JFK RUNWAY 31R
HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

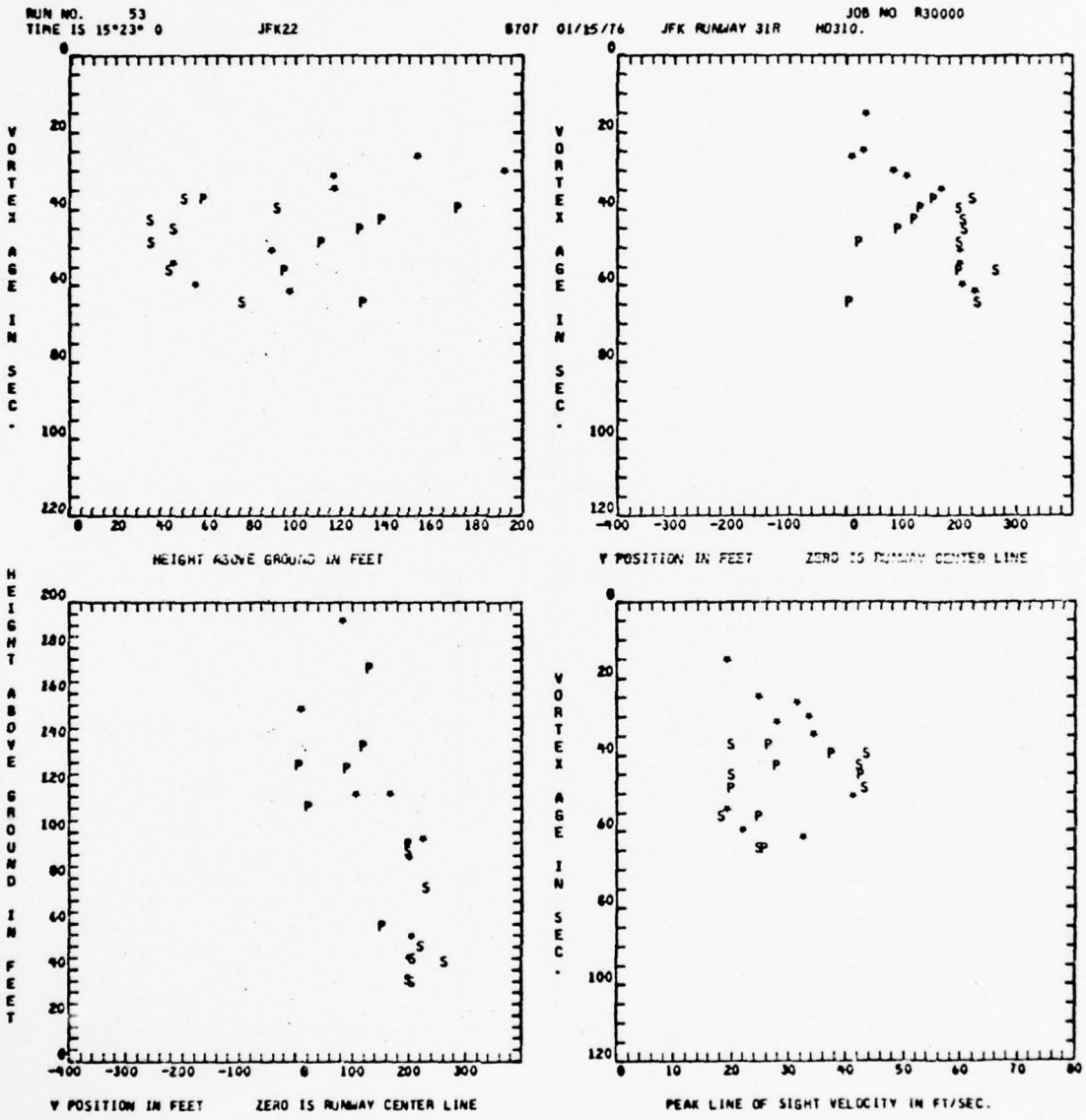

RUN NO. 97
TIME IS 15° 3° 0
JFK22
DC10 01/15/76 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

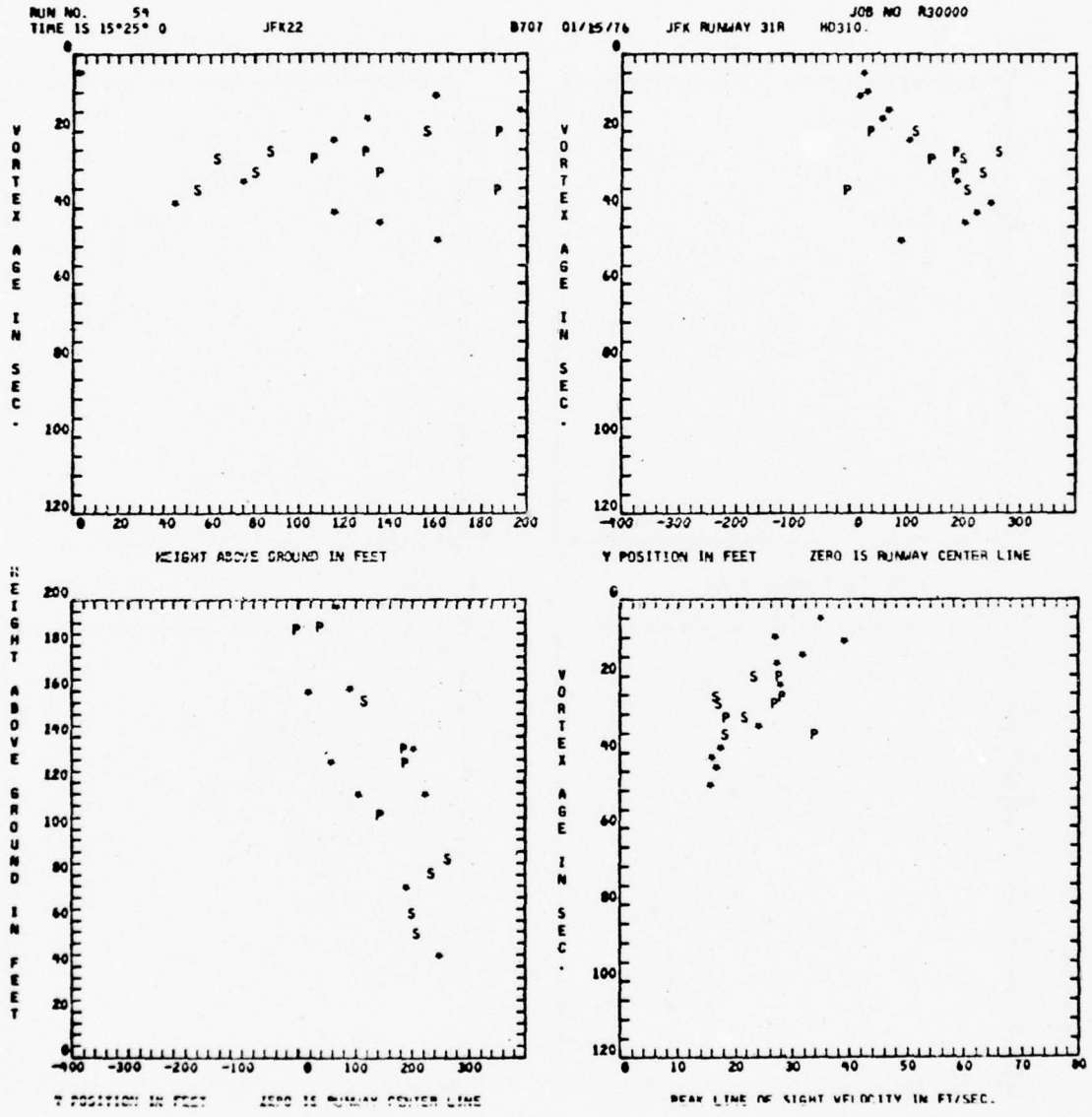

RUN NO. 48
TIME IS 15° 6° 0
JFK22
VC10 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.
S
P

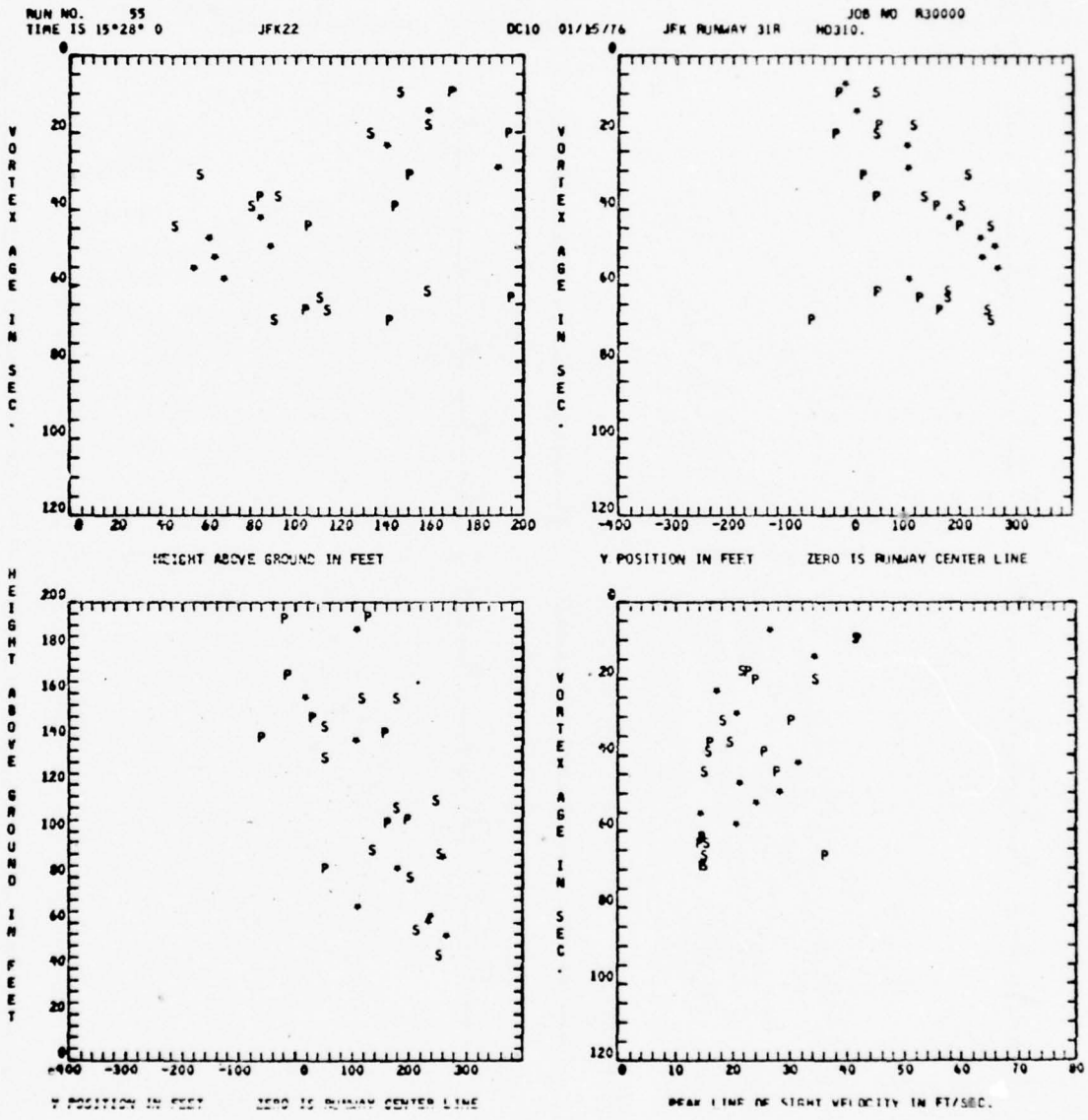

RUN NO. 49
TIME IS 15° 9' 0
JFK22
B747 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

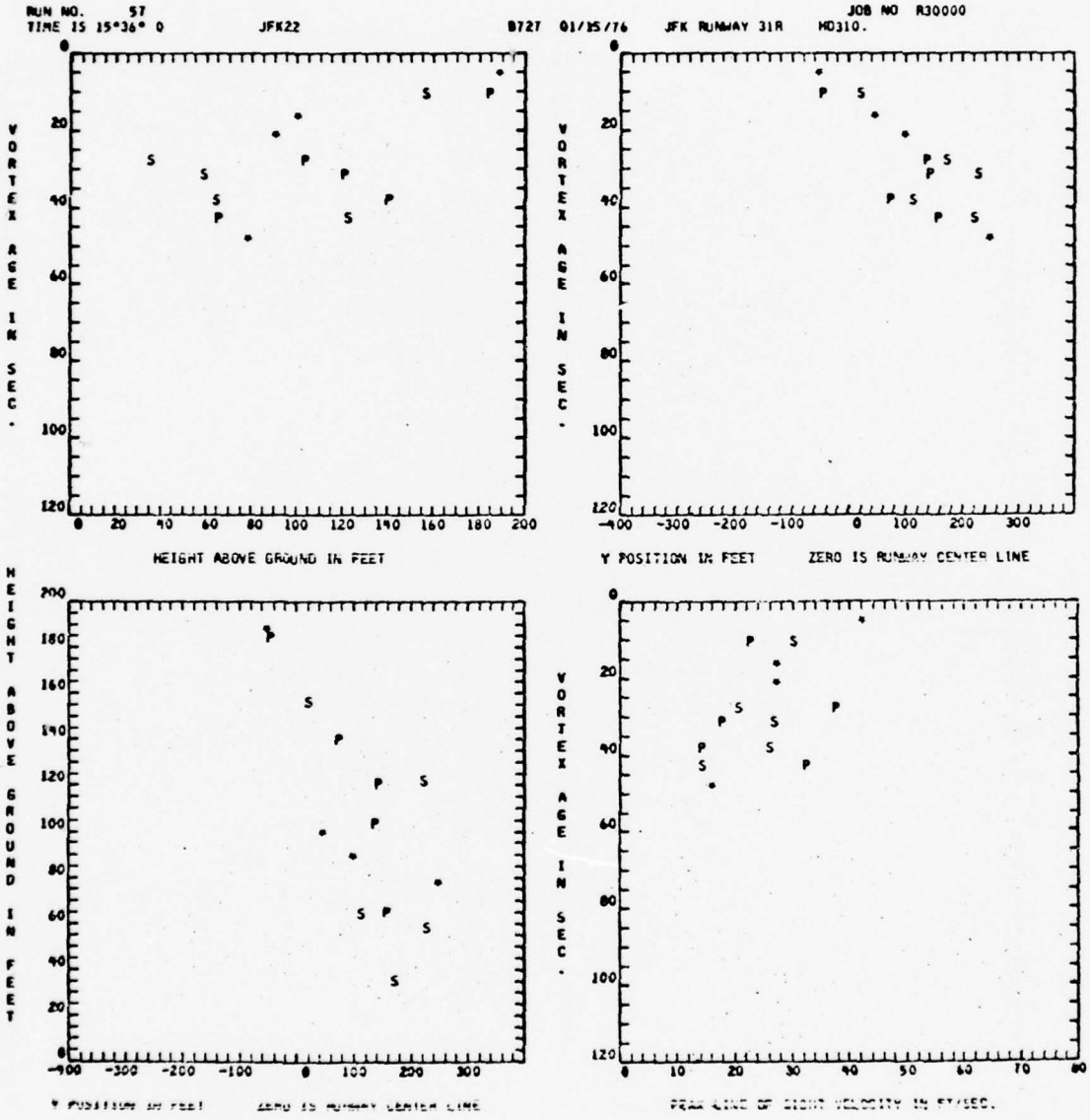

RUN NO. 50
TIME IS 15*12* 0
JFK22
B747 01/25/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

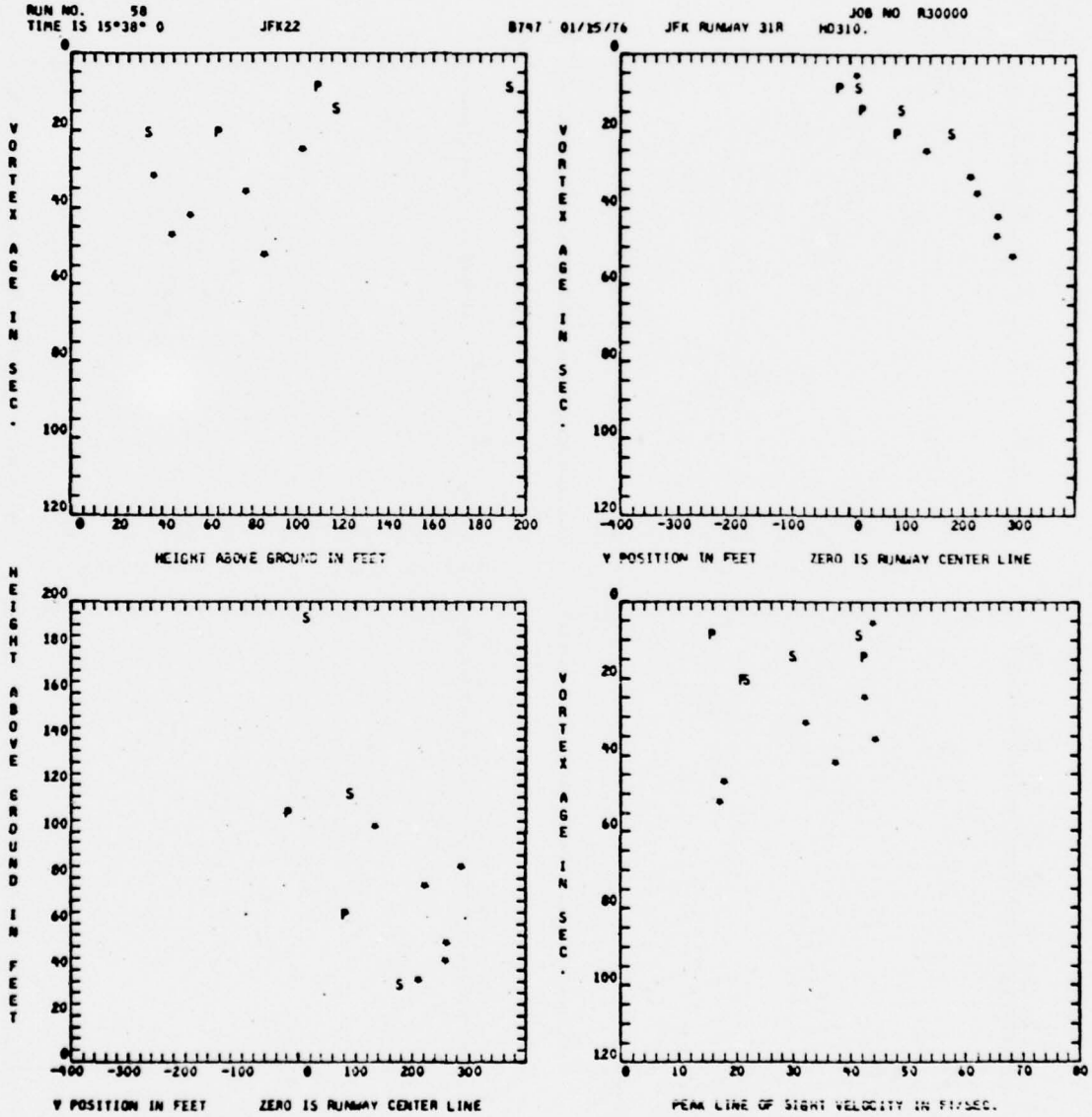

RUN NO. 51
TIME IS 15°16° 0
JFK22
8707 01/15/76
JFK RUNWAY 31R
H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE

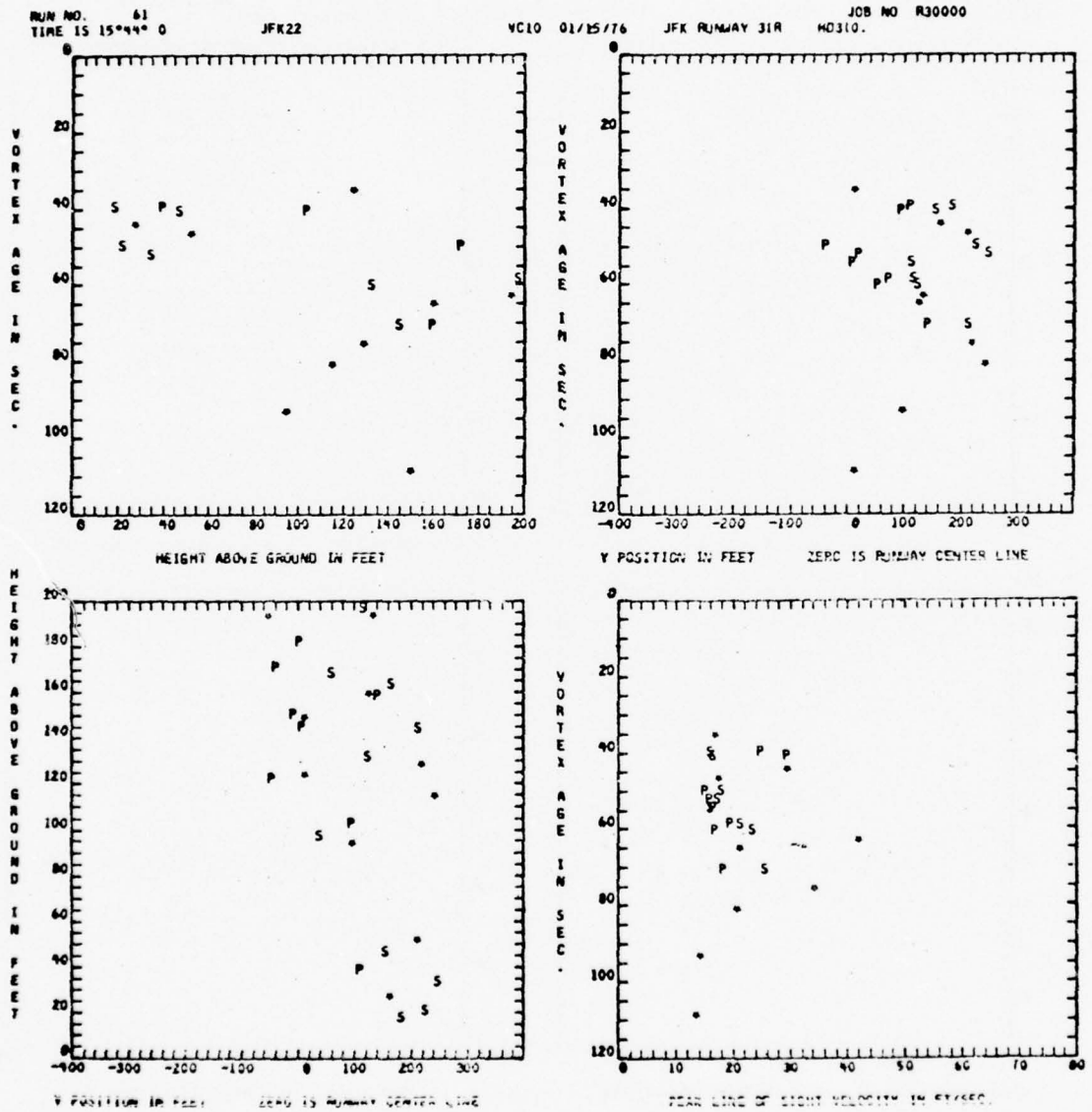

RUN NO. 53
TIME IS 15°23° 0
JFK22
B707 01/15/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

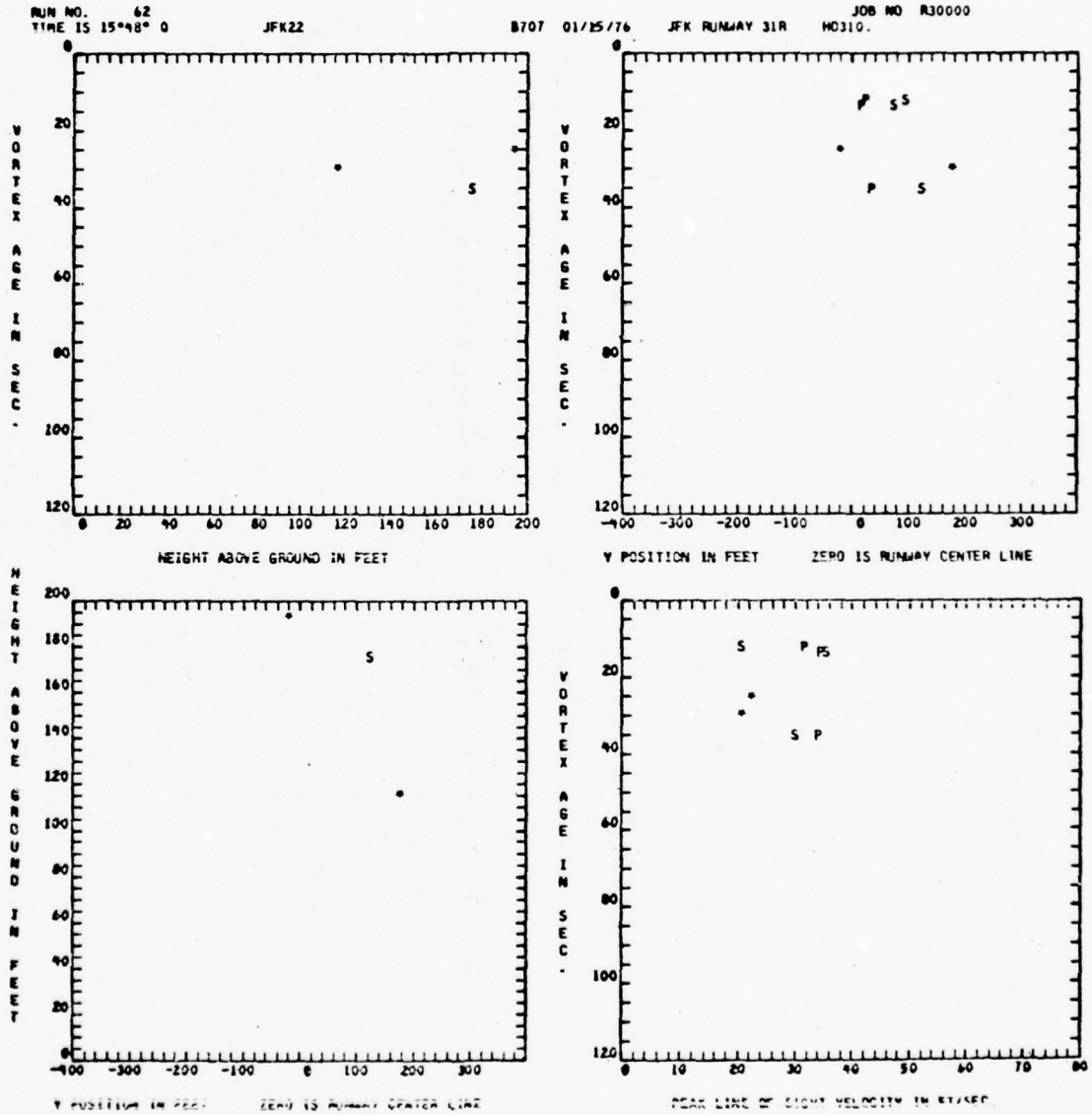

RUN NO. 59
TIME IS 15°25° 0
JFK22
B707 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

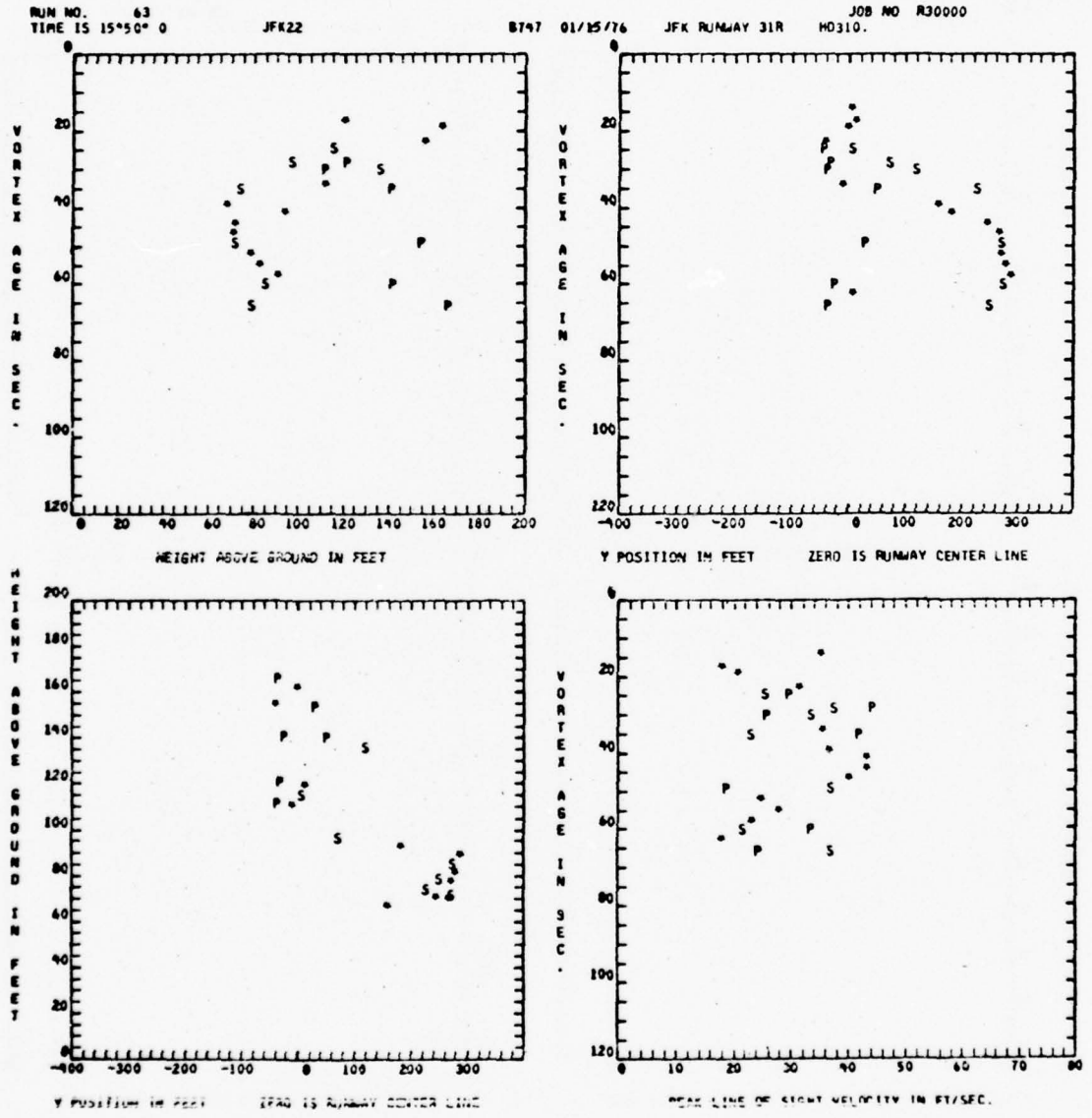

RUN NO. 55
TIME IS 15°28° 0
JFK22
DC10 01/25/76
JFK RUNWAY 31R
JOB NO R30000
HO310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
VORTEX AGE IN SEC.
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
RADIAL LINE OF SIGHT VELOCITY IN FT/SEC.

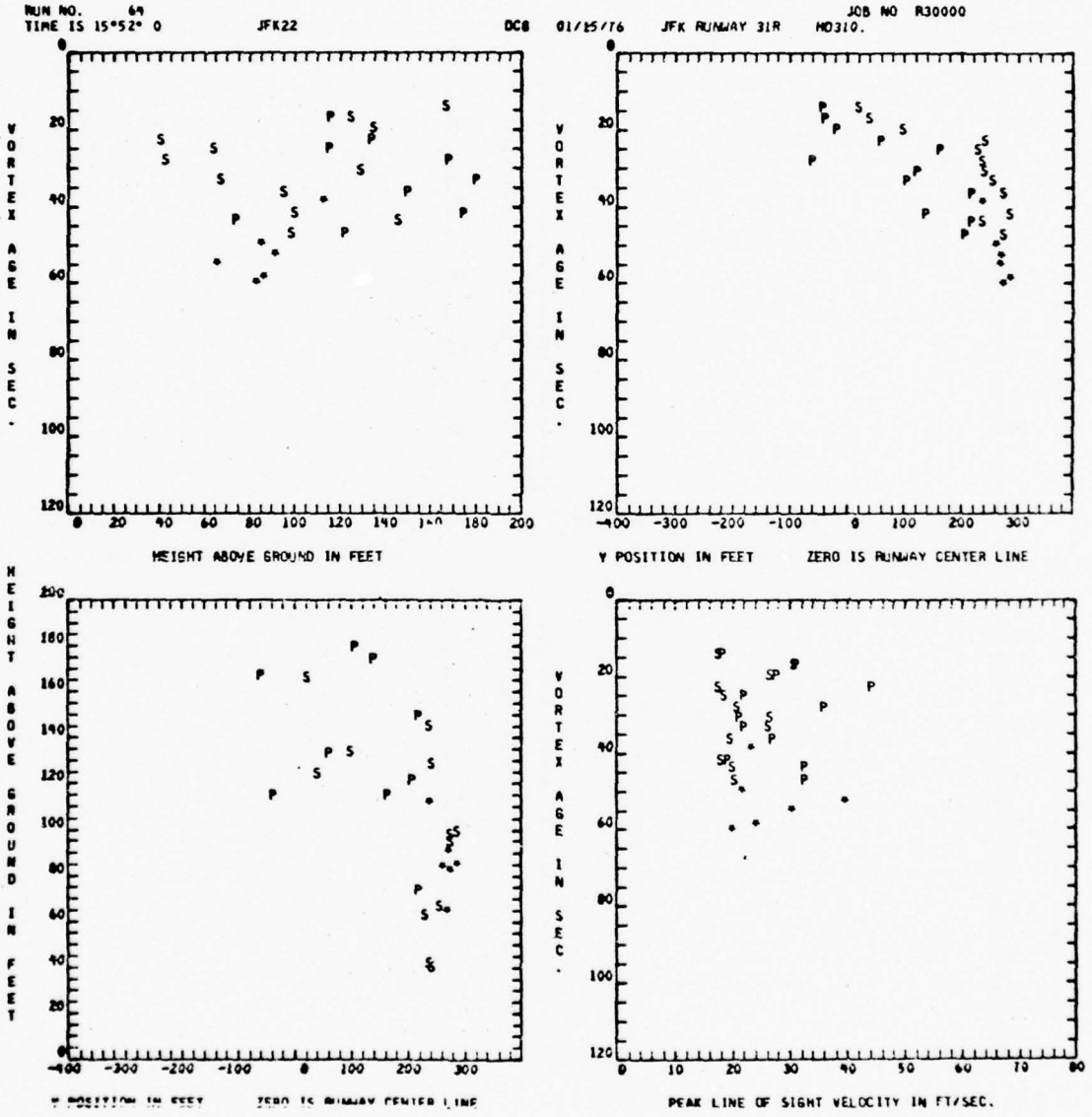

RUN NO. 57
TIME IS 15°36° 0
JFK22
B727 01/15/76 JFK RUNWAY 31R
JOB NO R30000
MD310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

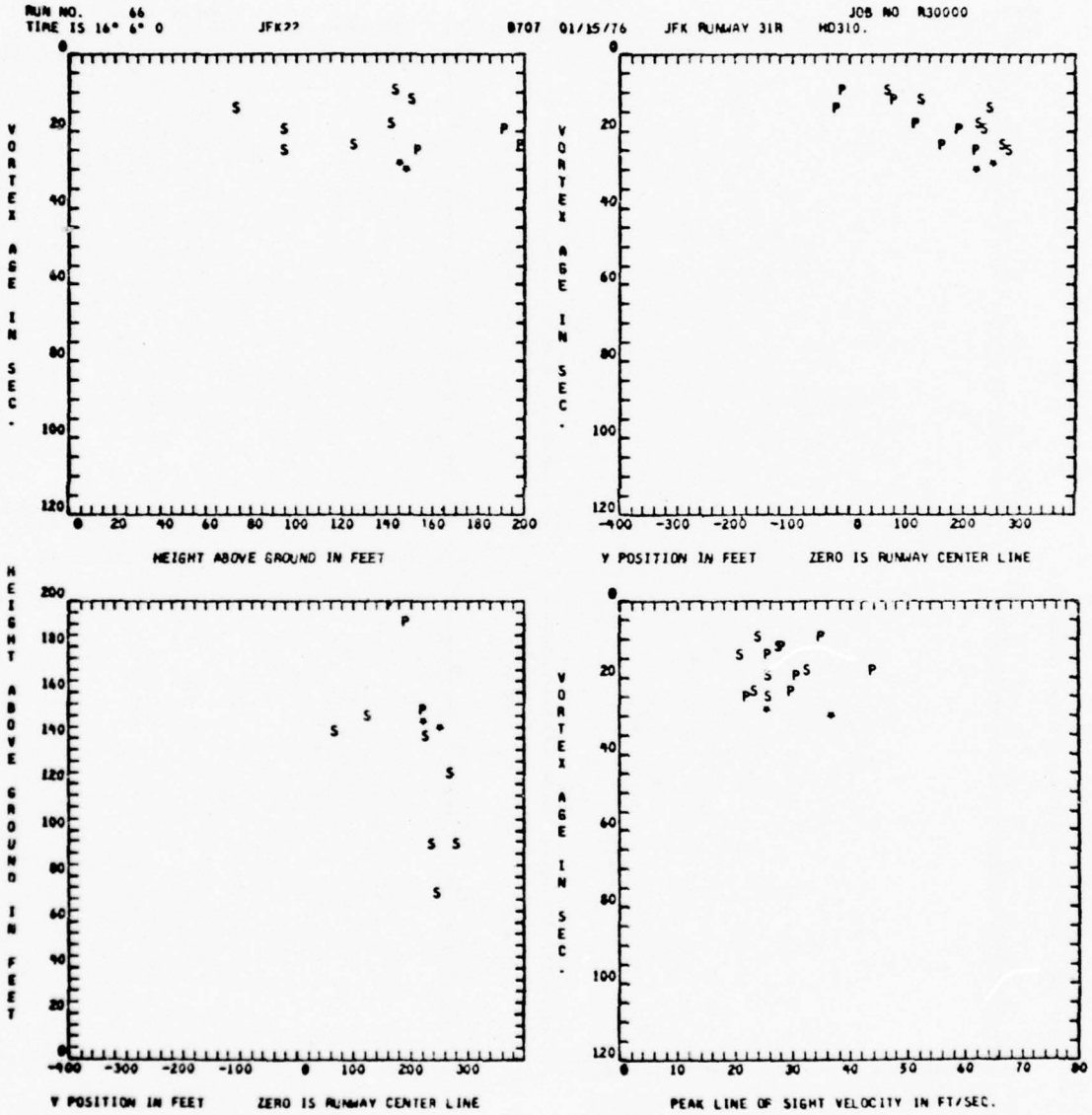

RUN NO. 58
TIME IS 15°38° 0
JFK22
B747 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

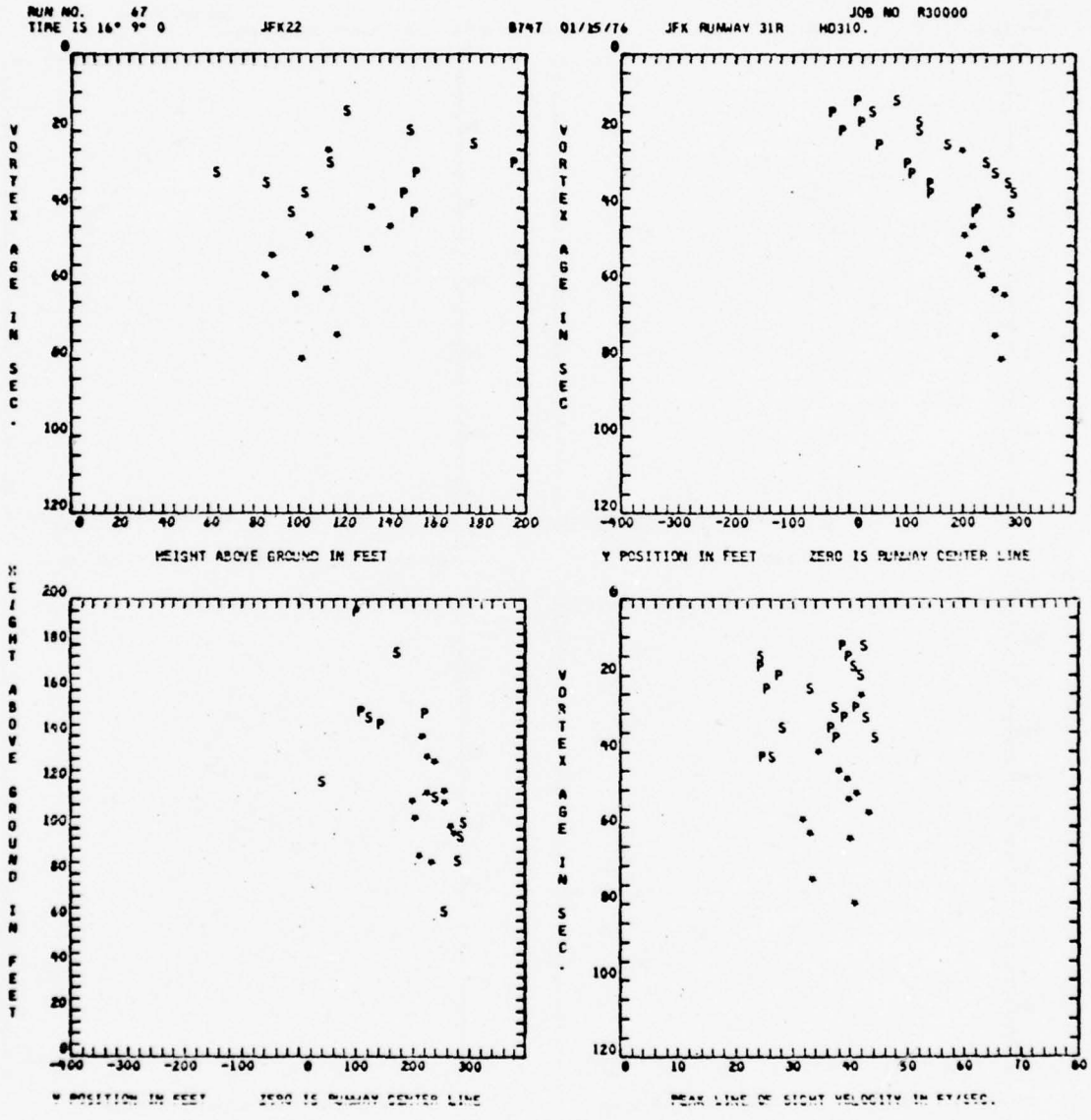

RUN NO. 61
TIME IS 15°44° 0
JFK22
VC10 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
REAR LINE OF SIGHT VELOCITY IN KT/SEC.

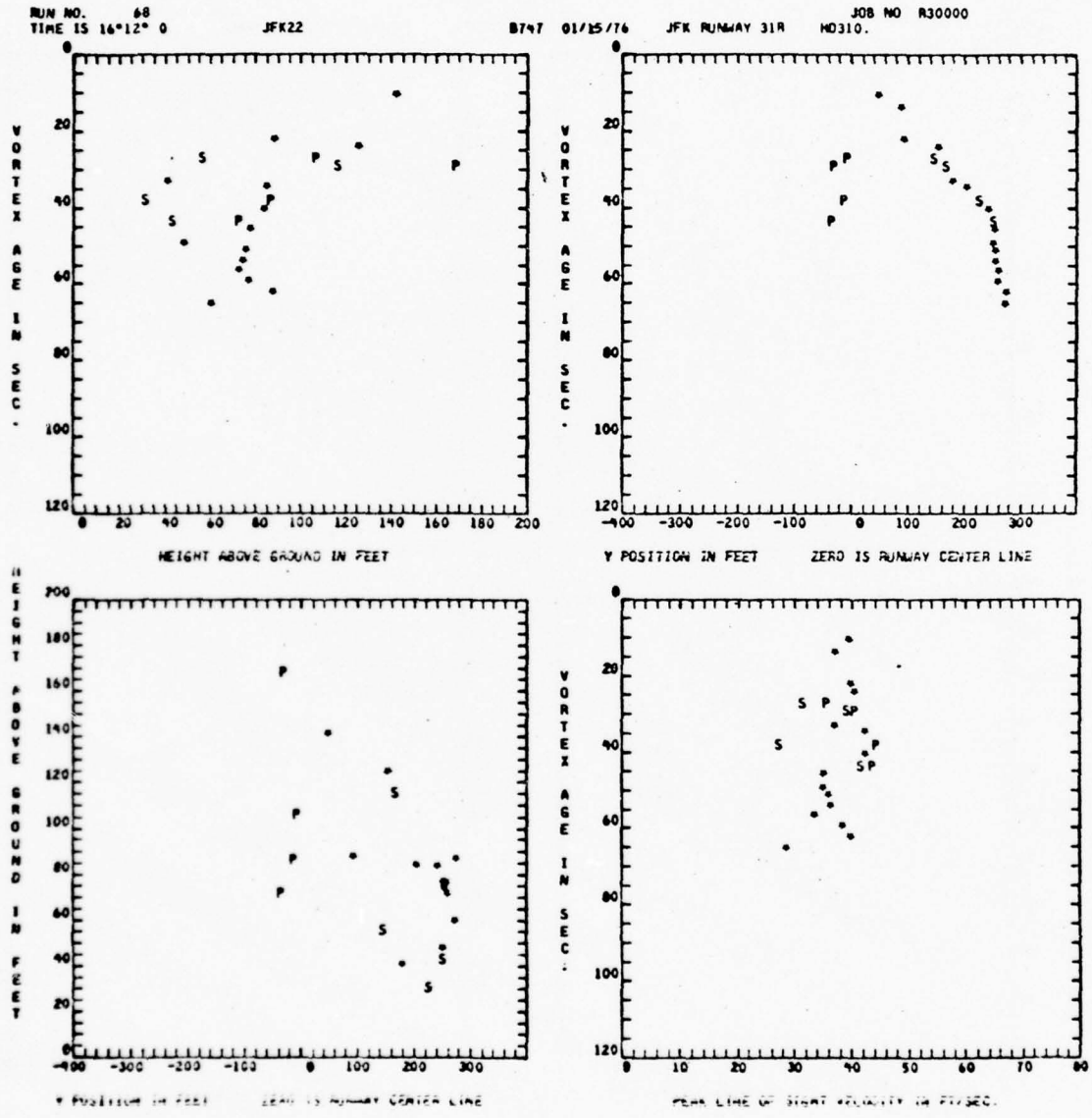

RUN NO. 62
TIME IS 15°48° 0
JFK22
B707 01/25/76 JFK RUNWAY 31R HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
VORTEX AGE IN SEC.

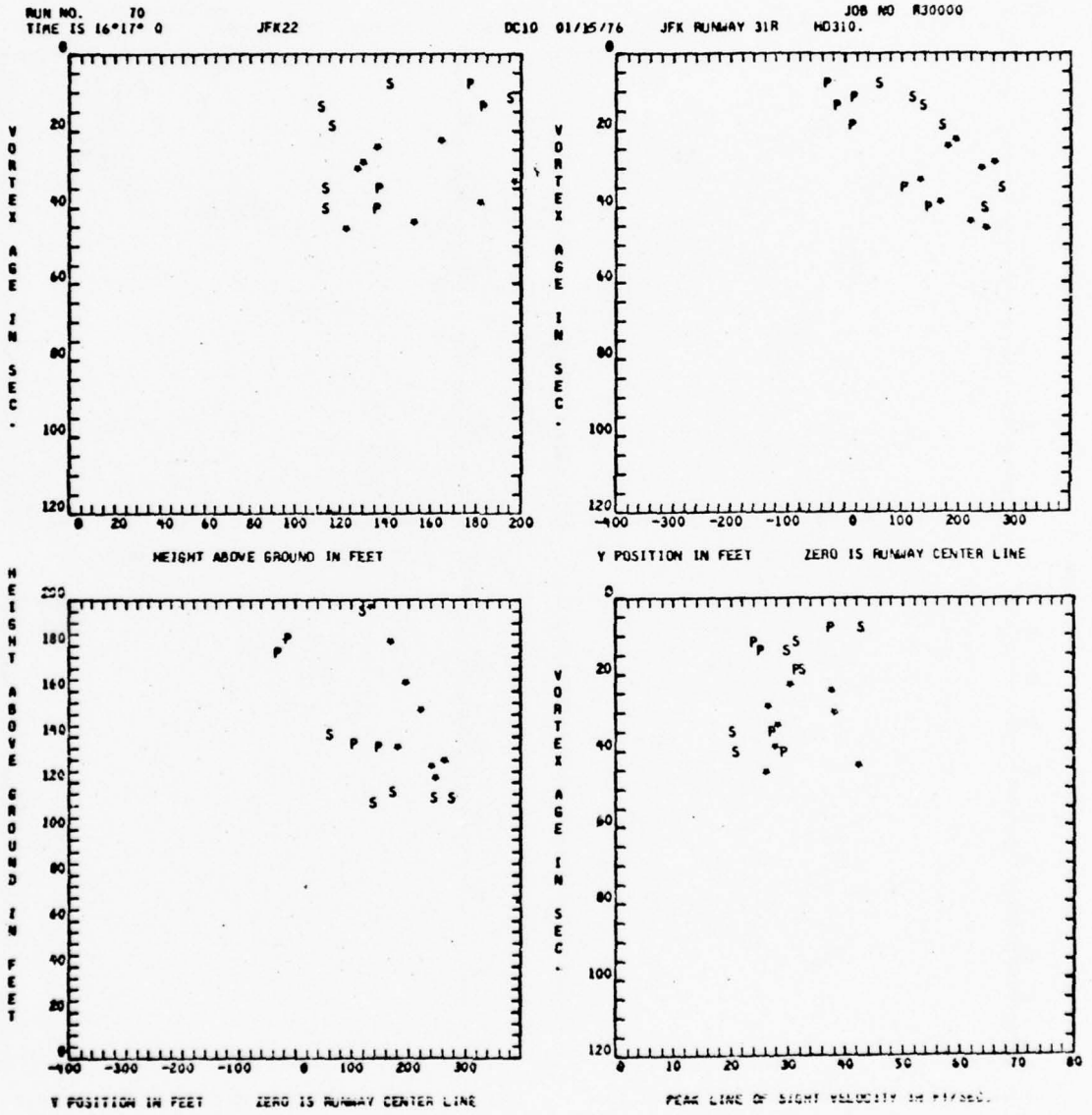

RUN NO. 63
TIME IS 15*50* 0
JFK22
B747 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE

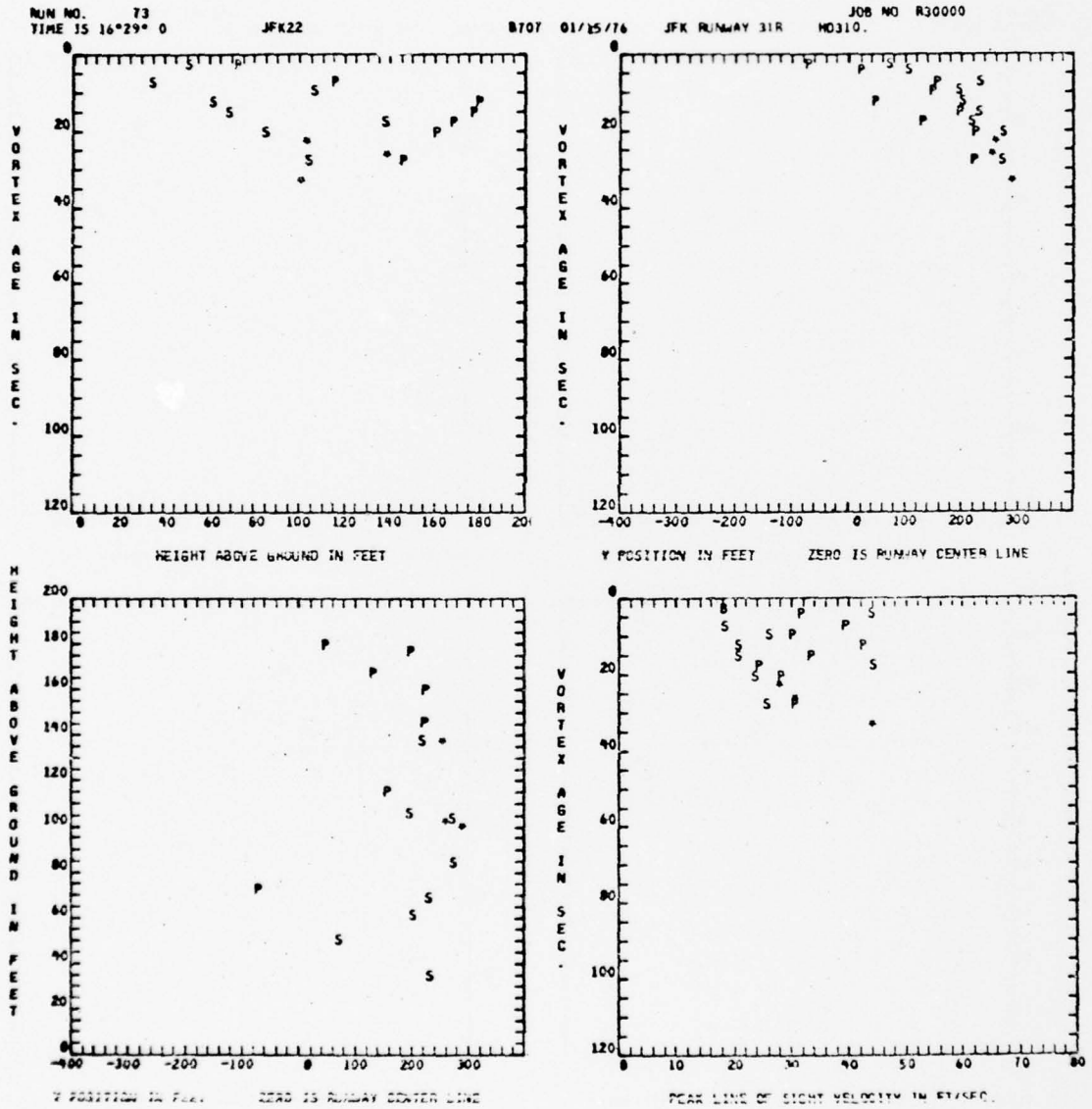

RUN NO. 69
TIME IS 15°52° 0
JFK22
DC8
01/25/76
JFK RUNWAY 31R
JOB NO R30000
MO310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

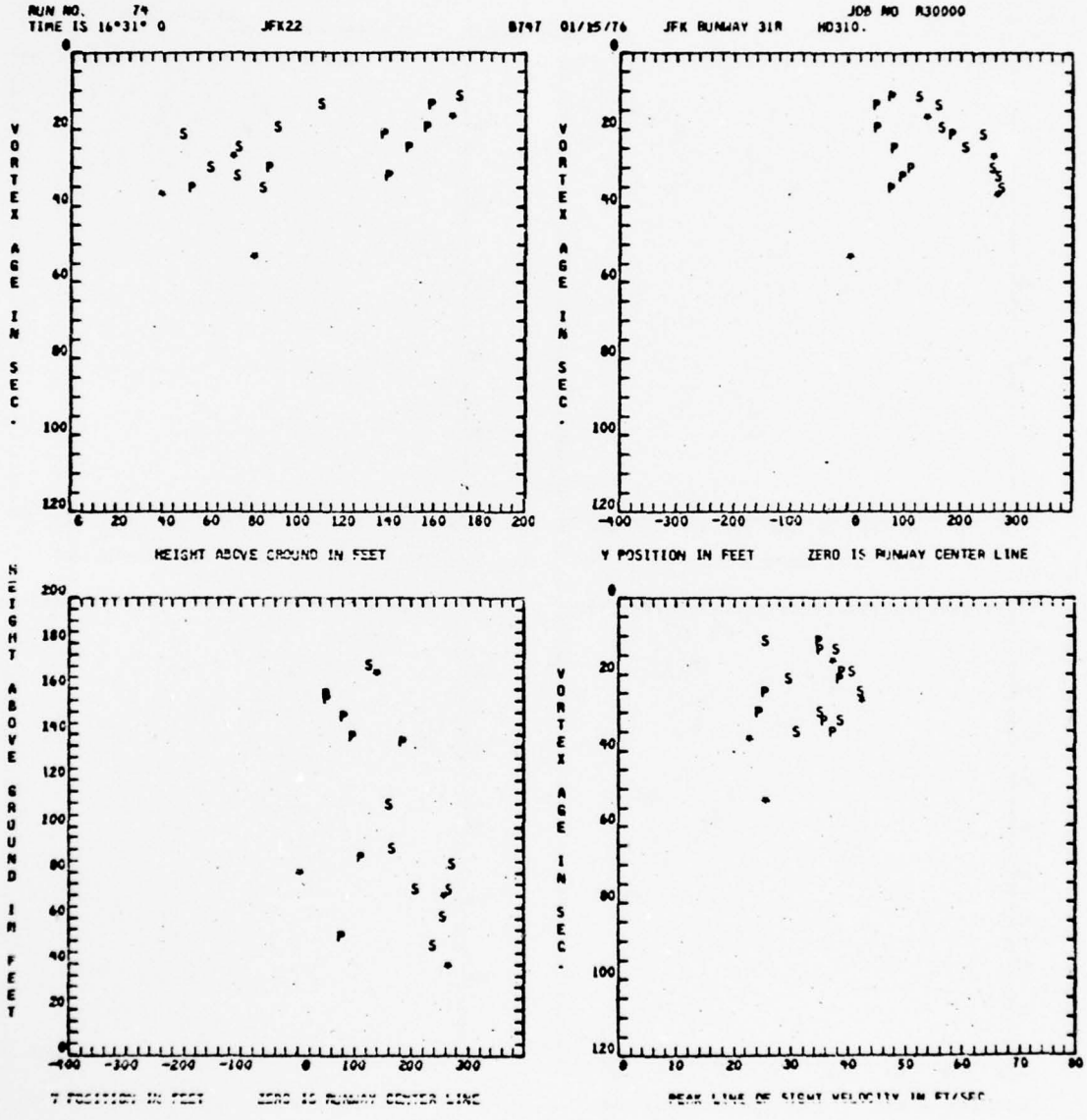

RUN NO. 66
TIRE IS 16° 6° 0
JFK??
B707 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

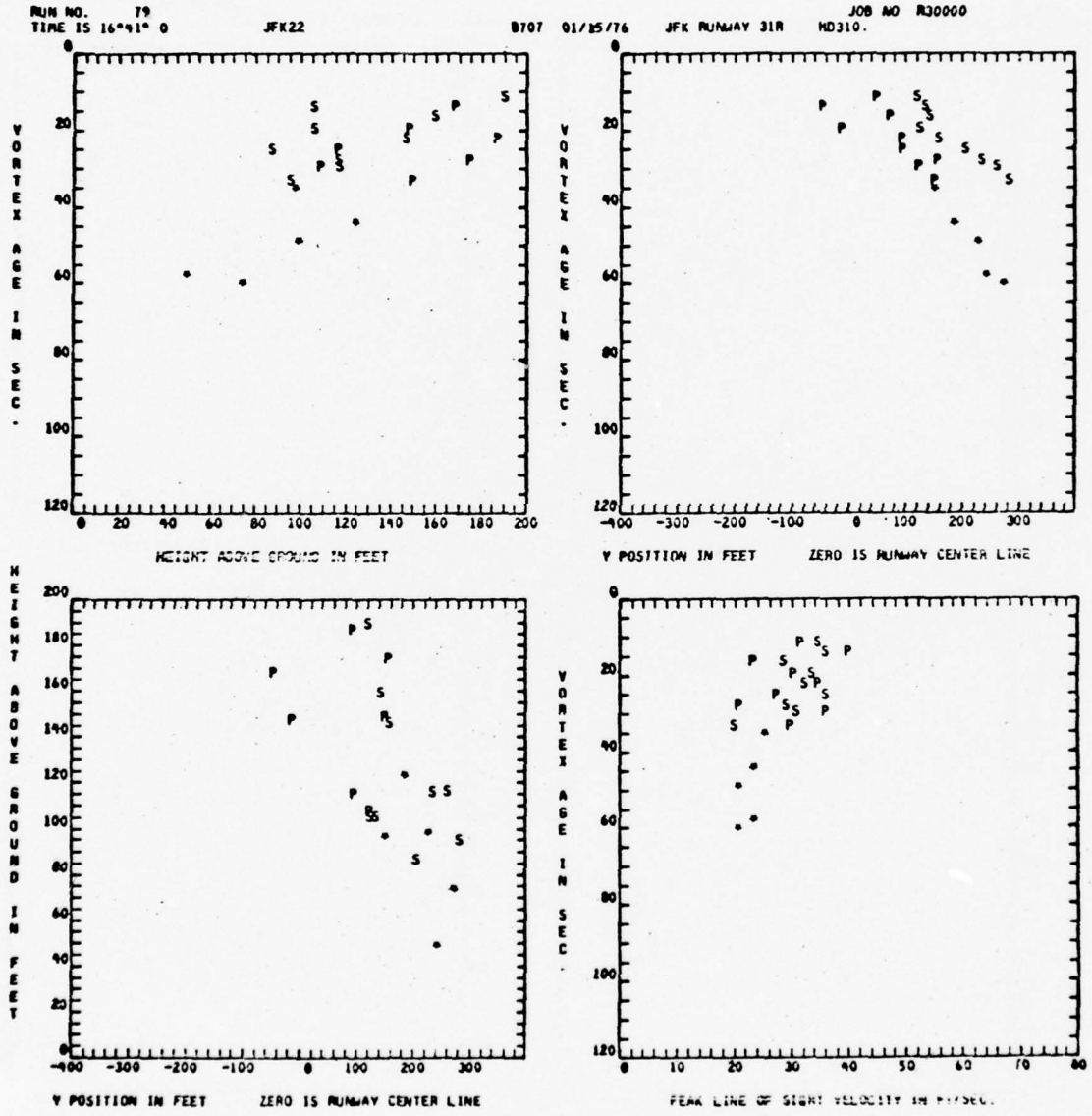

RUN NO. 67
TIME IS 16° 9° 0
JFK22
B747 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

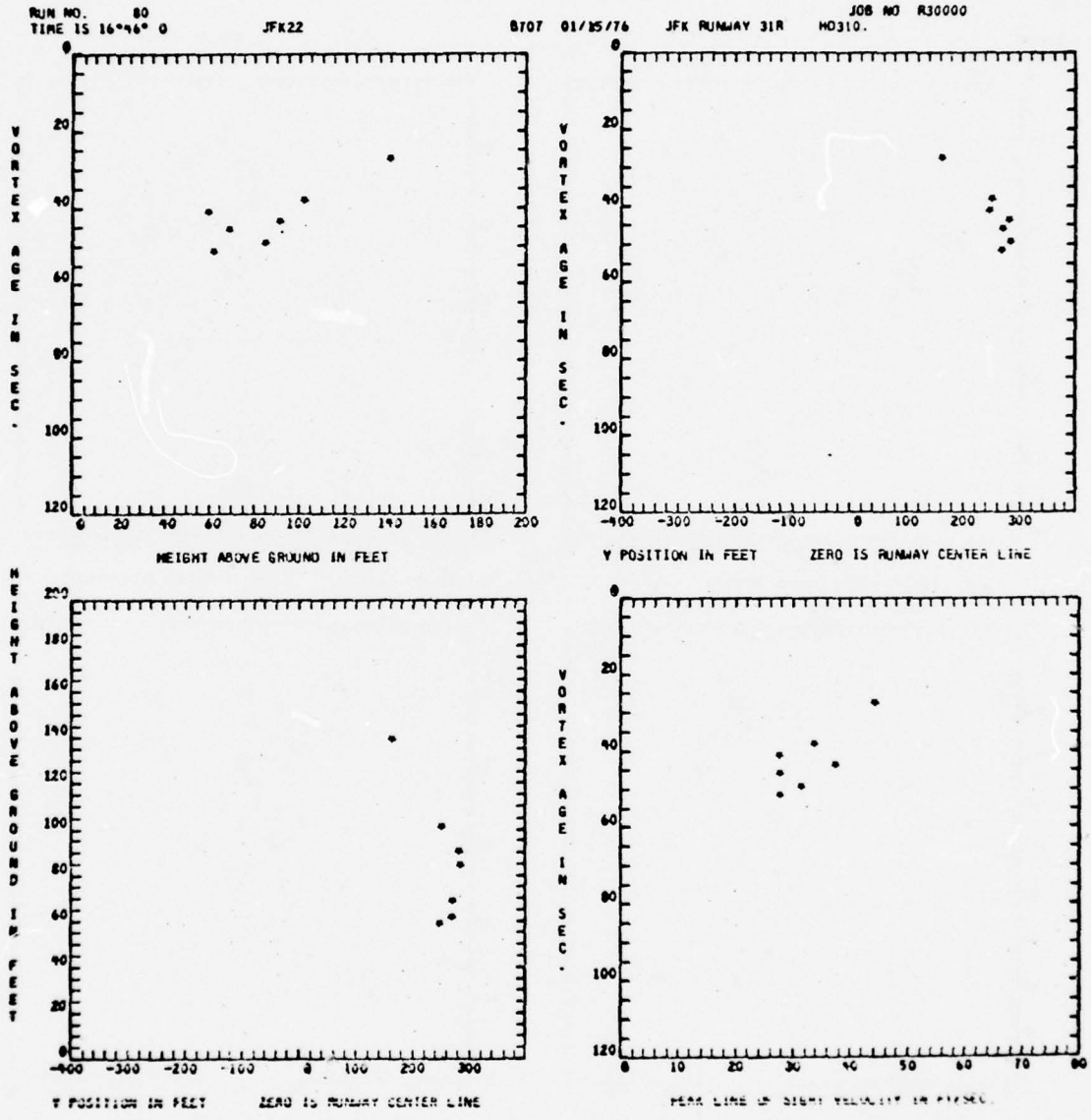

RUN NO. 68
TIME IS 16°12° 0
JFK22
B747 01/15/76
JFK RUNWAY 31R
JOB NO R30000
HD310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
VORTEX AGE IN SEC.

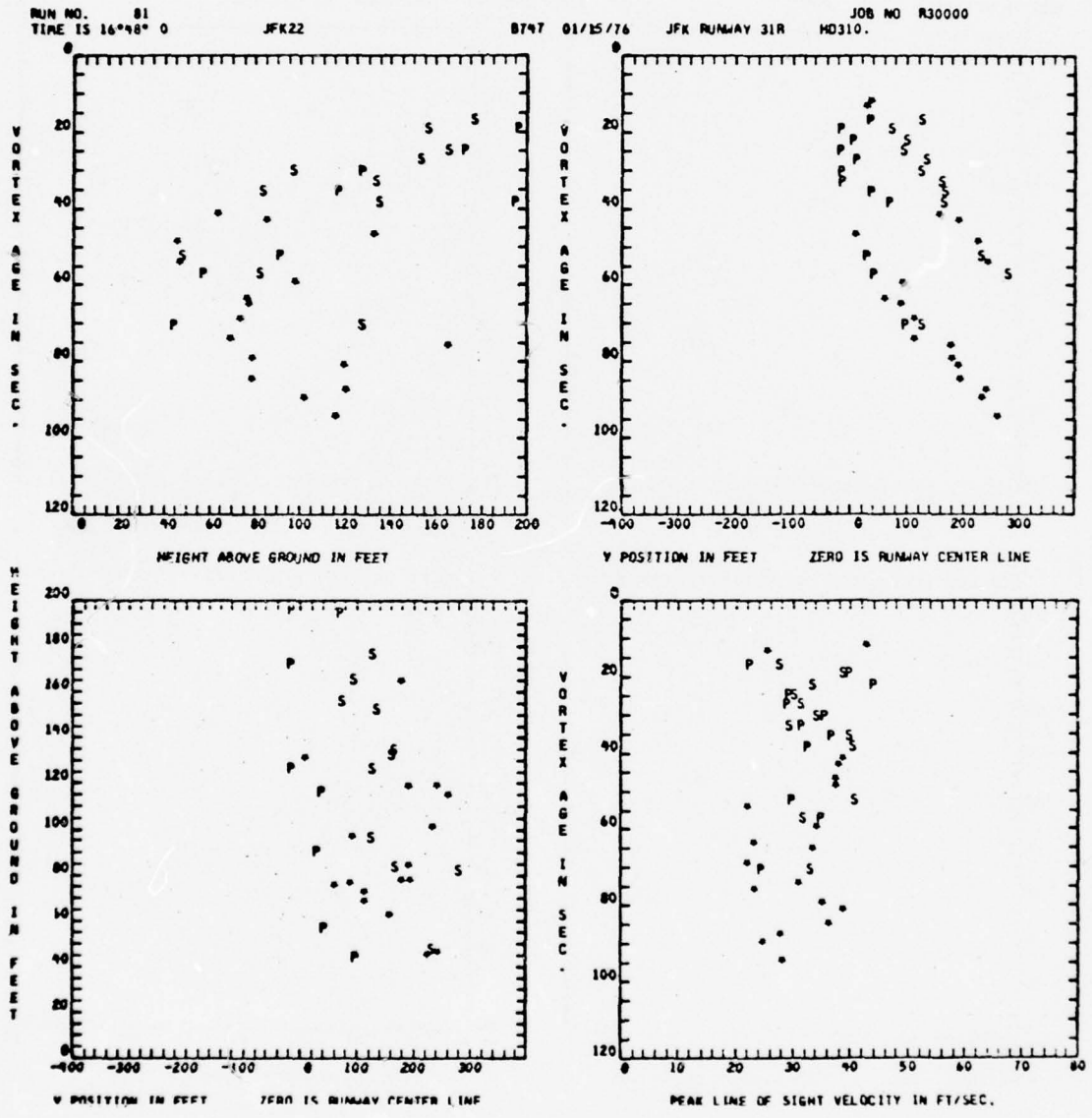

RUN NO. 70
TIME IS 16°17° 0
JFK22
DC10 01/15/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

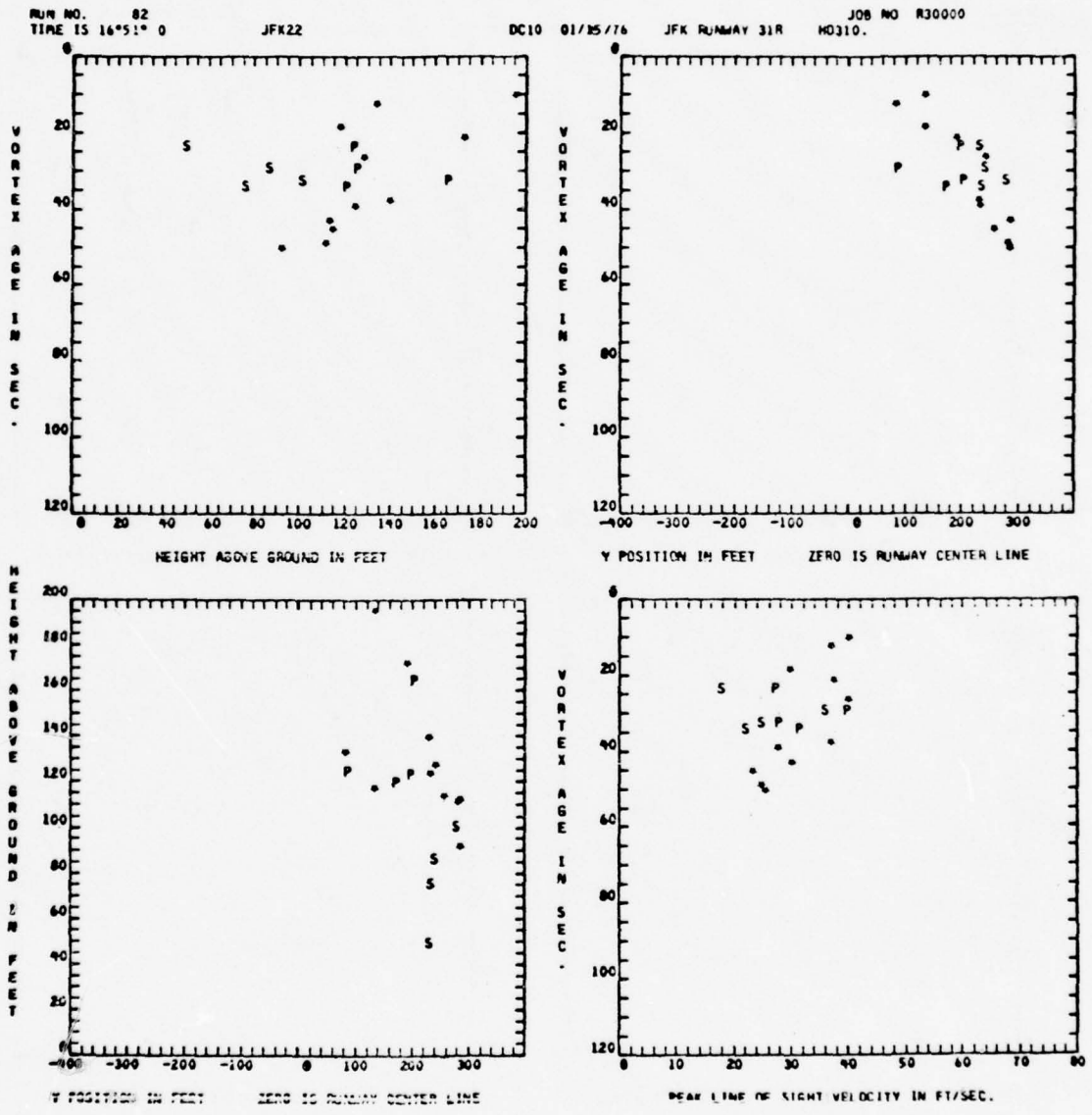

RUN NO. 73
TIME IS 16°29° 0
JFK22
B707 01/15/76 JFK RUNWAY 31R HDG310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

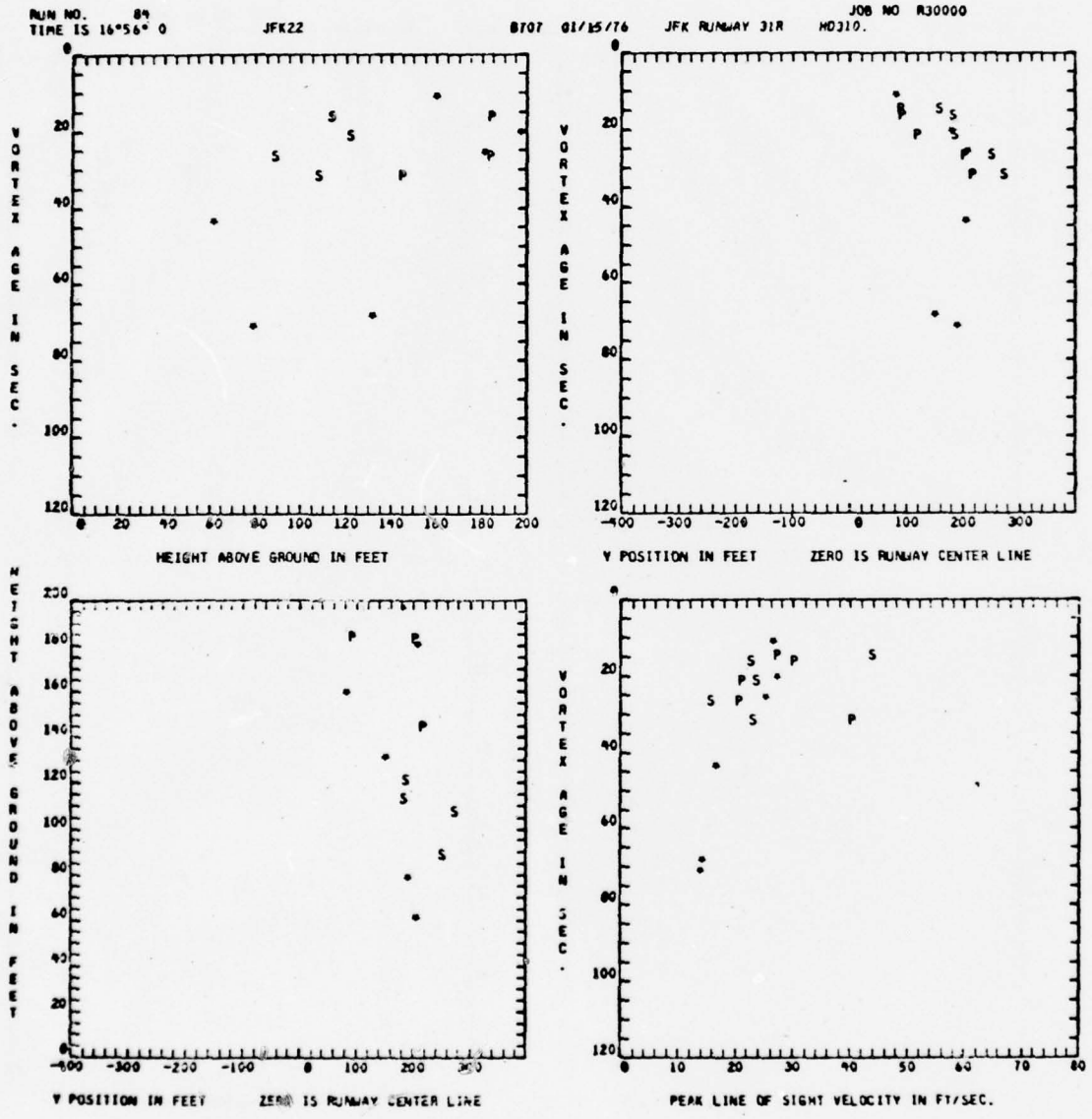

RUN NO. 74
TIME IS 16°31° 0
JFK22
B747 01/15/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC

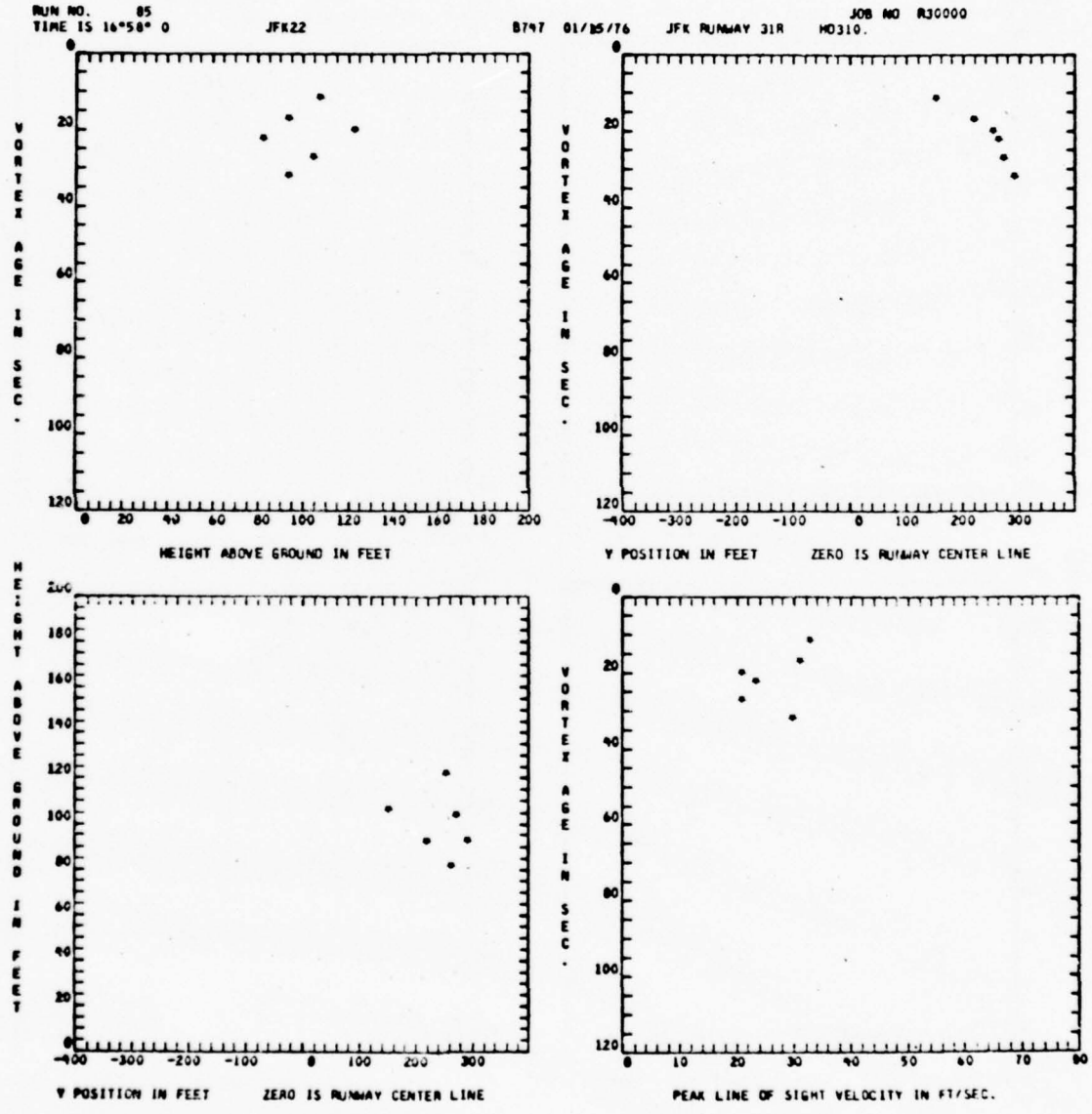

RUN NO. 79
TIME IS 16°41° 0
JFK22
B707 01/15/76 JFK RUNWAY 31R HD310.
JOB NO RJ0000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

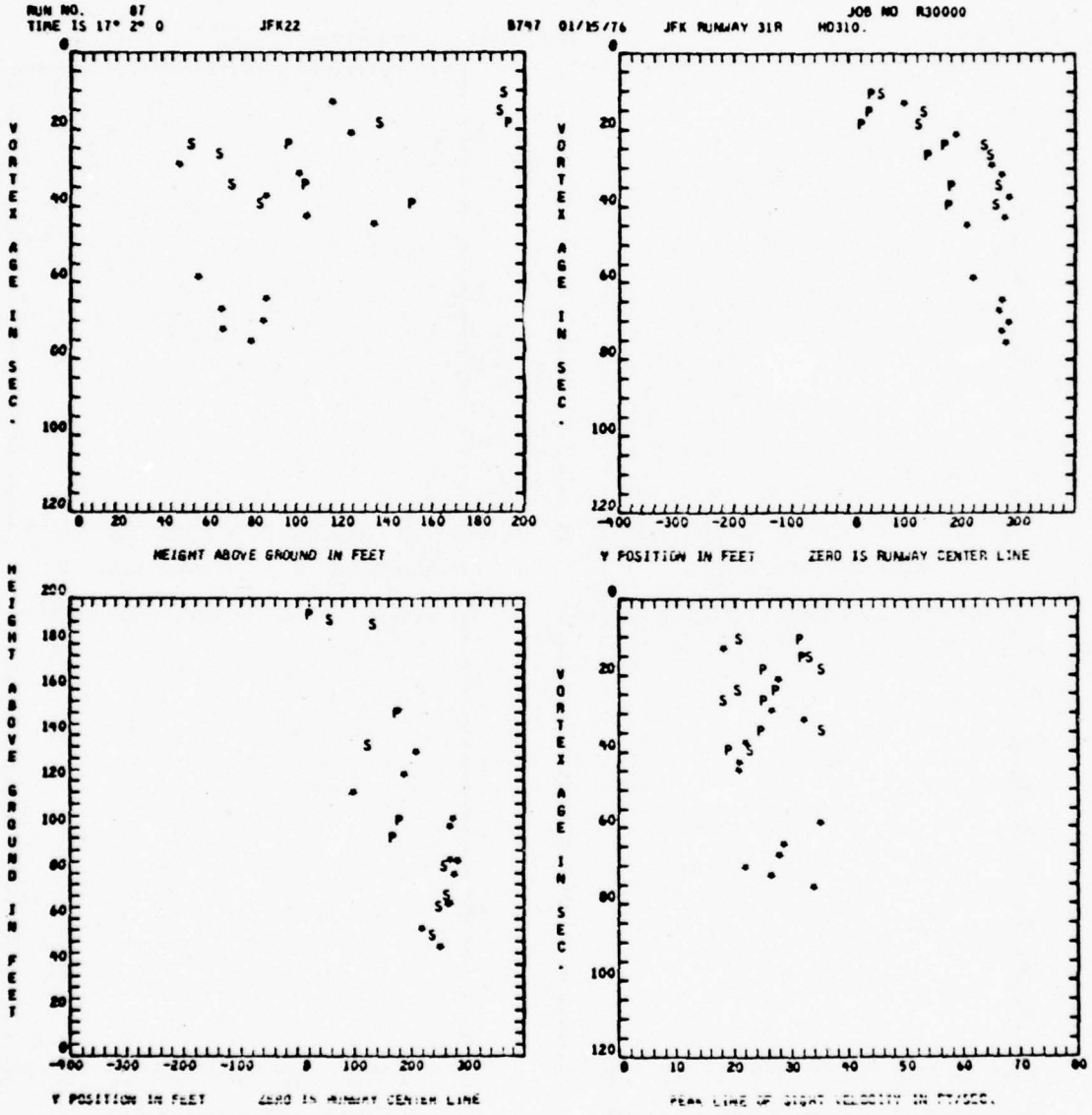

RUN NO. 80
TIME IS 16°46° 0
JFK22
B707 01/15/76 JFK RUNWAY 31R HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE

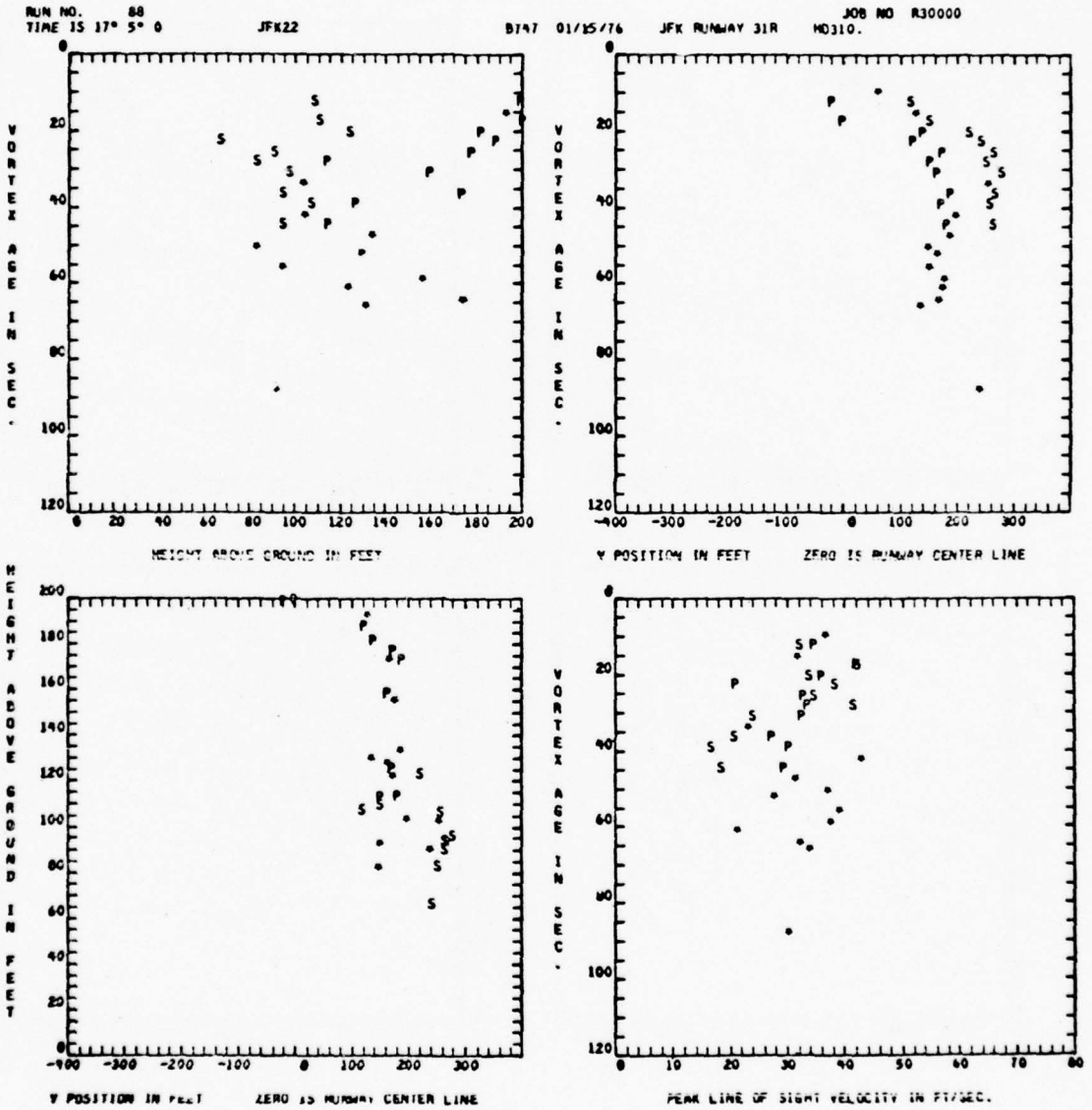

RUN NO. 81
TIME IS 16°48° 0
JFK22
B747 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

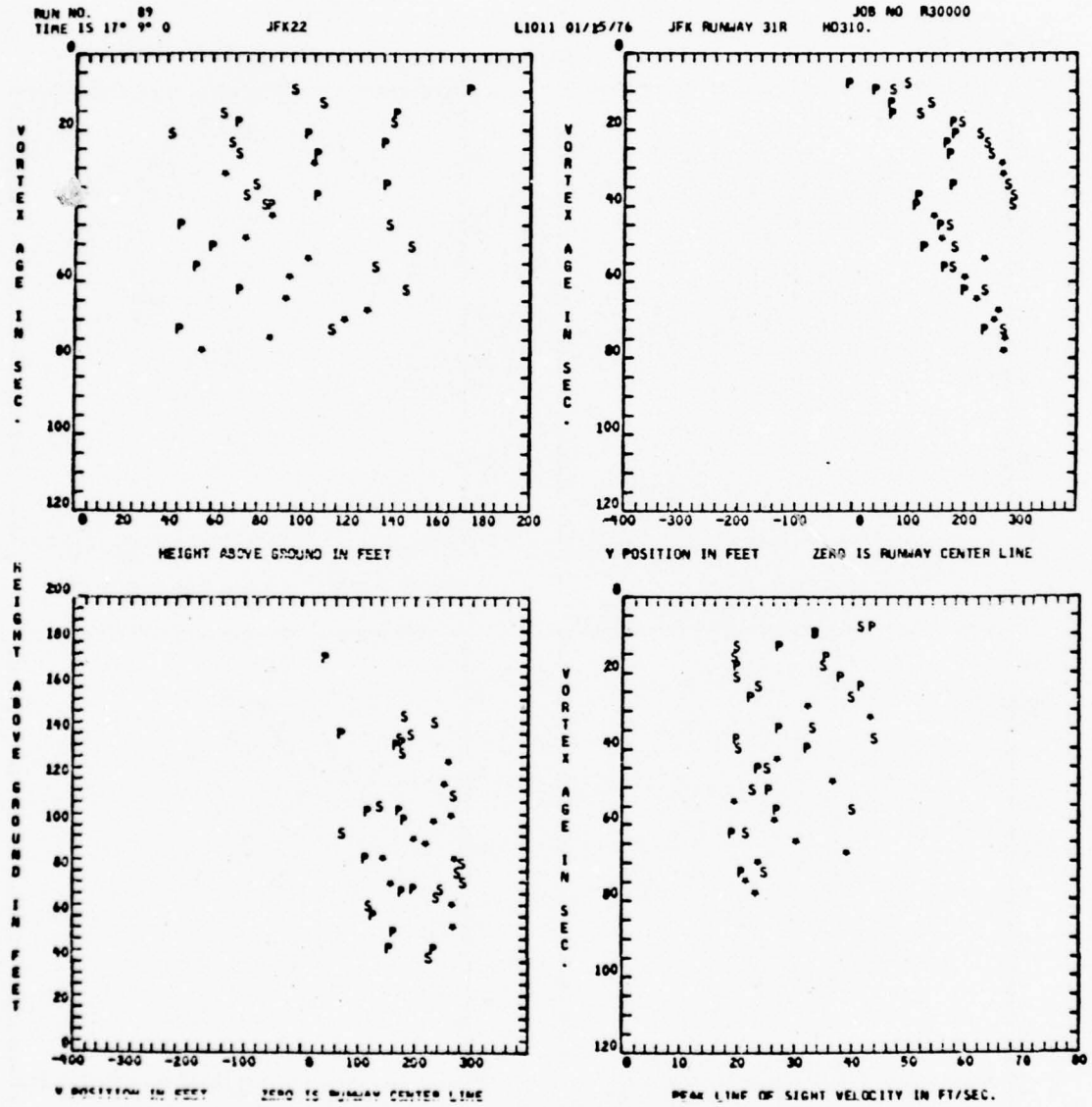

RUN NO. 82
TIME IS 16°51' 0
JFK22
DC10 01/25/76
JFK RUNWAY 31R
JOB NO R30000
H0310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

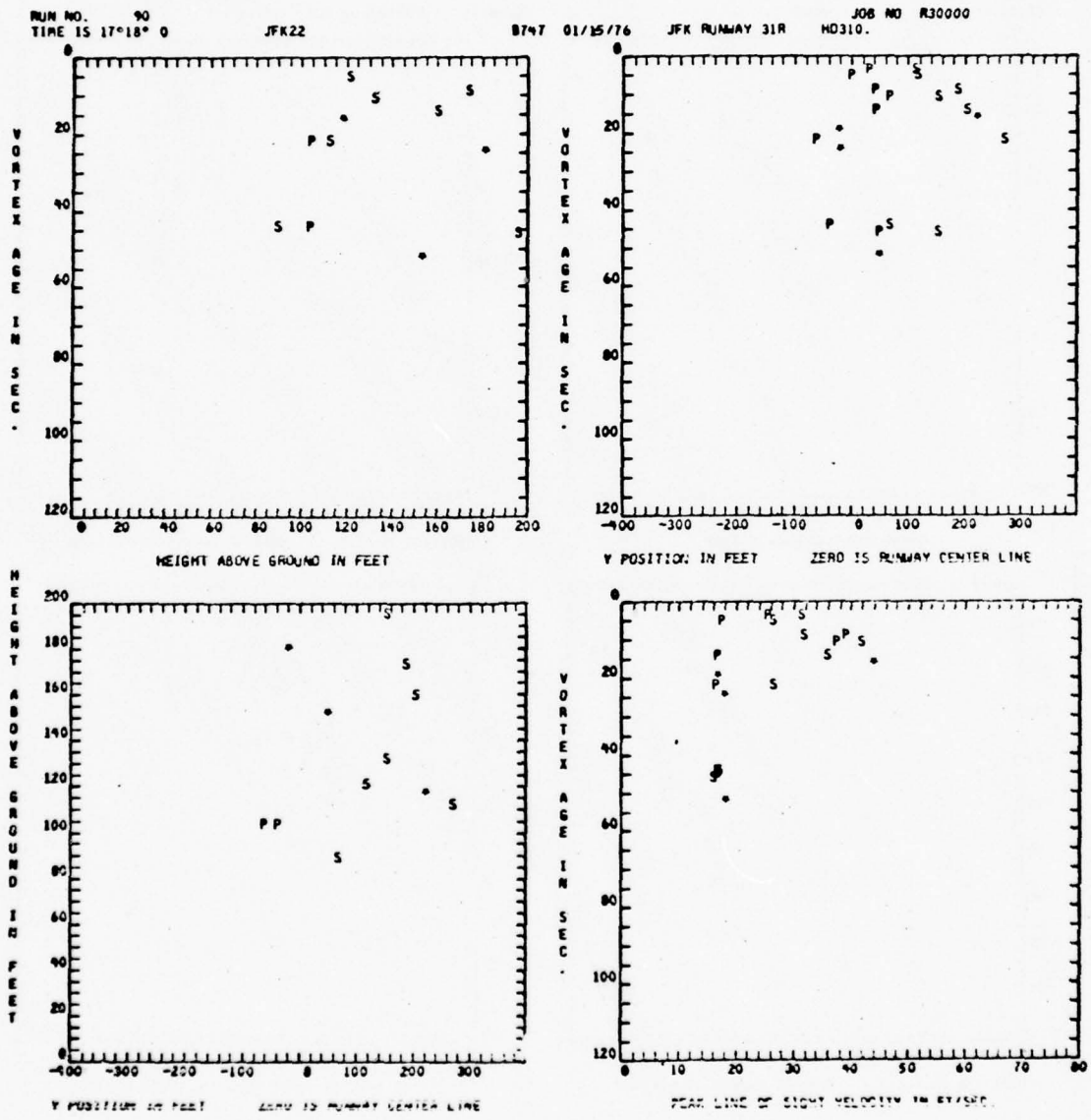

RUN NO. 89
TIME IS 16°56° 0
JFK22
B707 01/15/76
JFK RUNWAY 31R
HDJ10.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

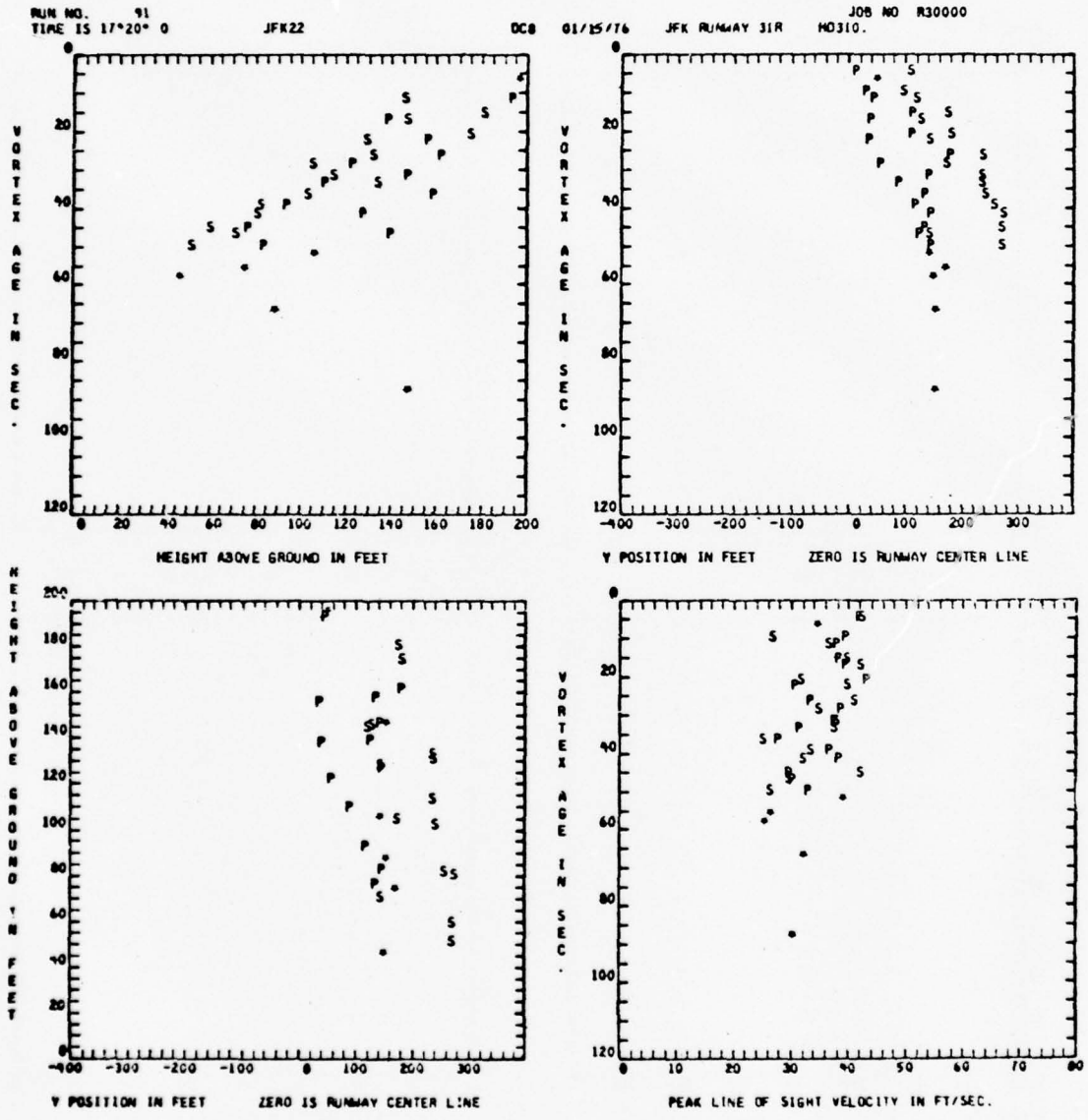

RUN NO. 85
TIME IS 16*58* 0
JFK22
B747 01/15/76 JFK RUNWAY 31R M0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

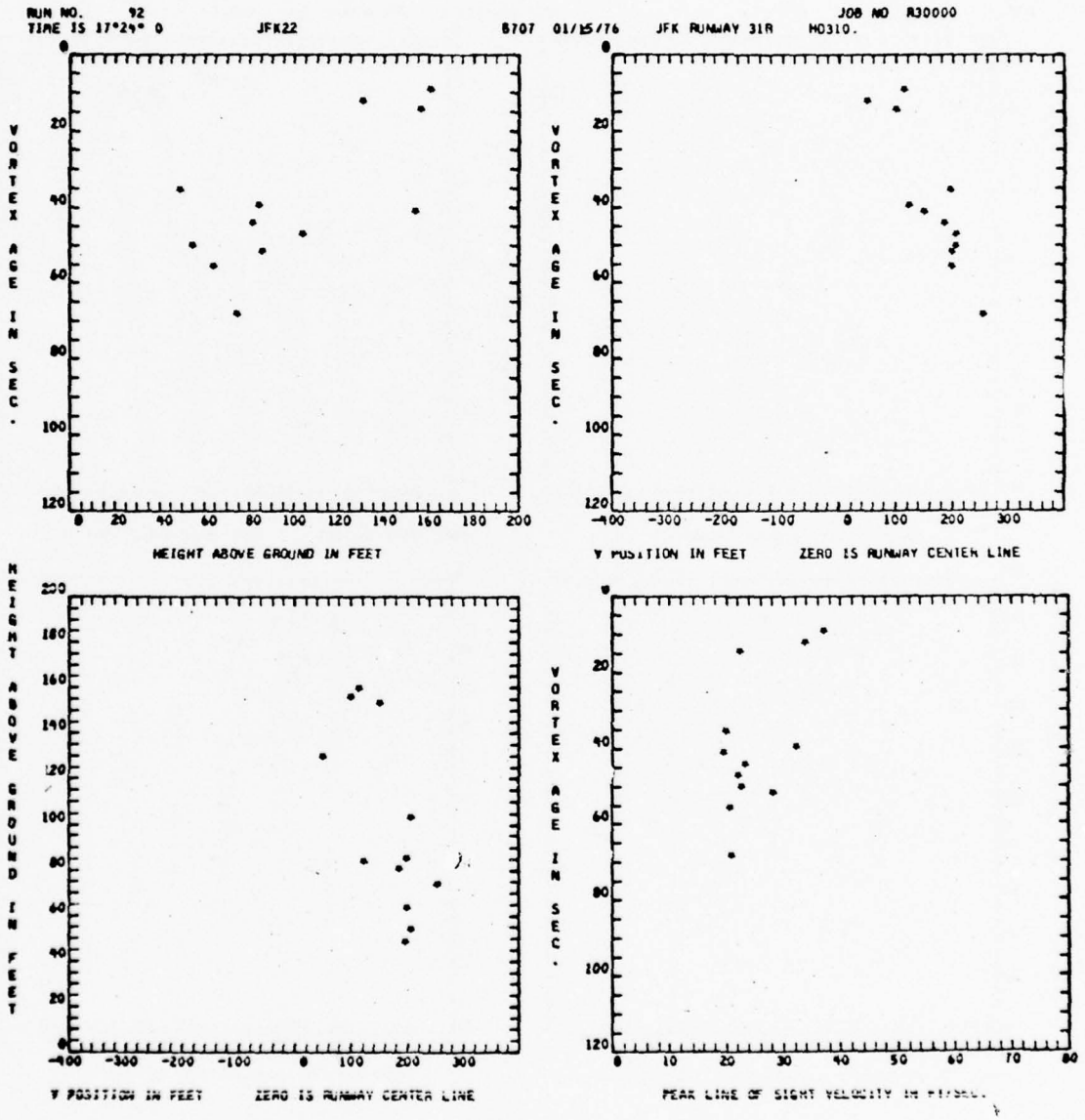

RUN NO. 87
TIME IS 17° 2° 0
JFK22
B747 01/15/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

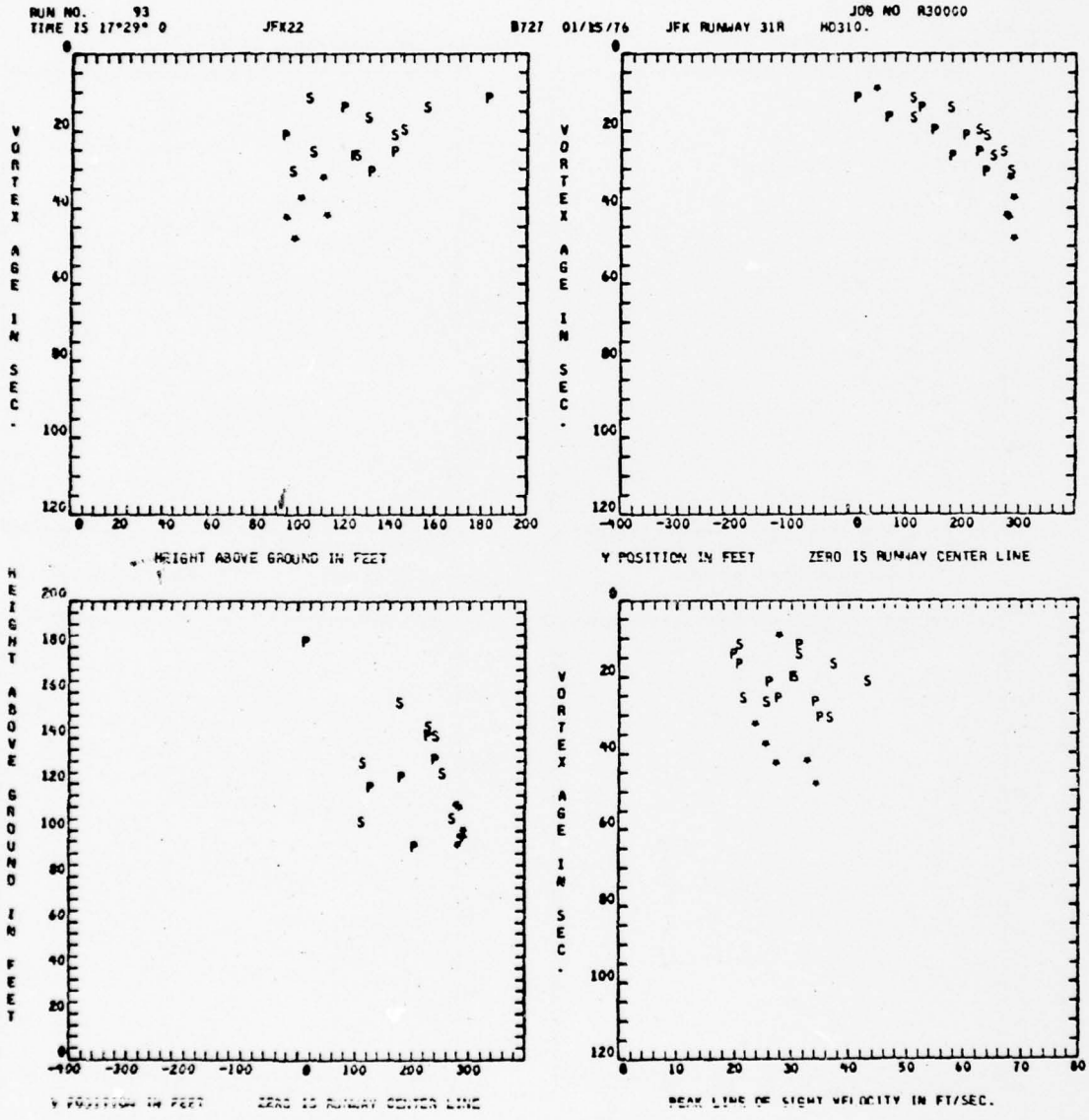

RUN NO. 88
TIME IS 17° 5° 0
JFK22
B747 01/15/76 JFK RUNWAY 31R
JOB NO R30000
HO310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 89
TIME IS 17° 9° 0
JFK22
L1011 01/15/76
JFK RUNWAY 31R
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 90
TIME IS 17°18° 0
JFK22
B747 01/15/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE


RUN NO. 91
TIME IS 17°20° 0
JFK22
DC8
01/15/76
JFK RUNWAY 31R
HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 92
TIME IS 17°24° 0
JFK22
B707 01/15/76
JFK RUNWAY 31R
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 93
TIME IS 17°29° 0
JFK22
B727 01/15/76 JFK RUNWAY 31R H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

JFK27

```
$DATA
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ISFILE  =          +1,          +2,          +12,          +12,
                  +23,         +24,          +30,          +30,
                 +1000,       +1000,        +1000,        +1000,
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                 +1000,       +1000,        +1000,        +1000
NRUN    =         +40
ZLASER  =   .70000000E+01
ZLASCN  =   .00000000E+00
INTVEL  =          +2
NPSUF   =          +4
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BPERCT  =   .10000000E+00
CPERCT  =   .50000000E+00
RPERCT  =   .31415927E+00
EPERCT  =   .15000000E+01
NOISEF  =          +0
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WANGLE  =   .00000000E+00
WINDHP  =   .80000000E+03
LFLIP   =          +3
ISINE   =          +2
EDIT    =   .20000000E+00
MOVAVE  =          +5
YLIM    =   .00000000E+00,   .00000000E+00
ZLIM    =   .00000000E+00,   .00000000E+00
ISCALE  =          +1
YR      =   .40000000E+03
YL      =  -.40000000E+03
ZT      =   .20000000E+03
TMAX    =   .12000000E+03
VMAX    =   .80000000E+02
NSPLT   =         +12
JPROF   =          +1
IMULT   =          +0
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IOP2    =          +2
IOP3    =          +2
IOP4    =          +1

$END
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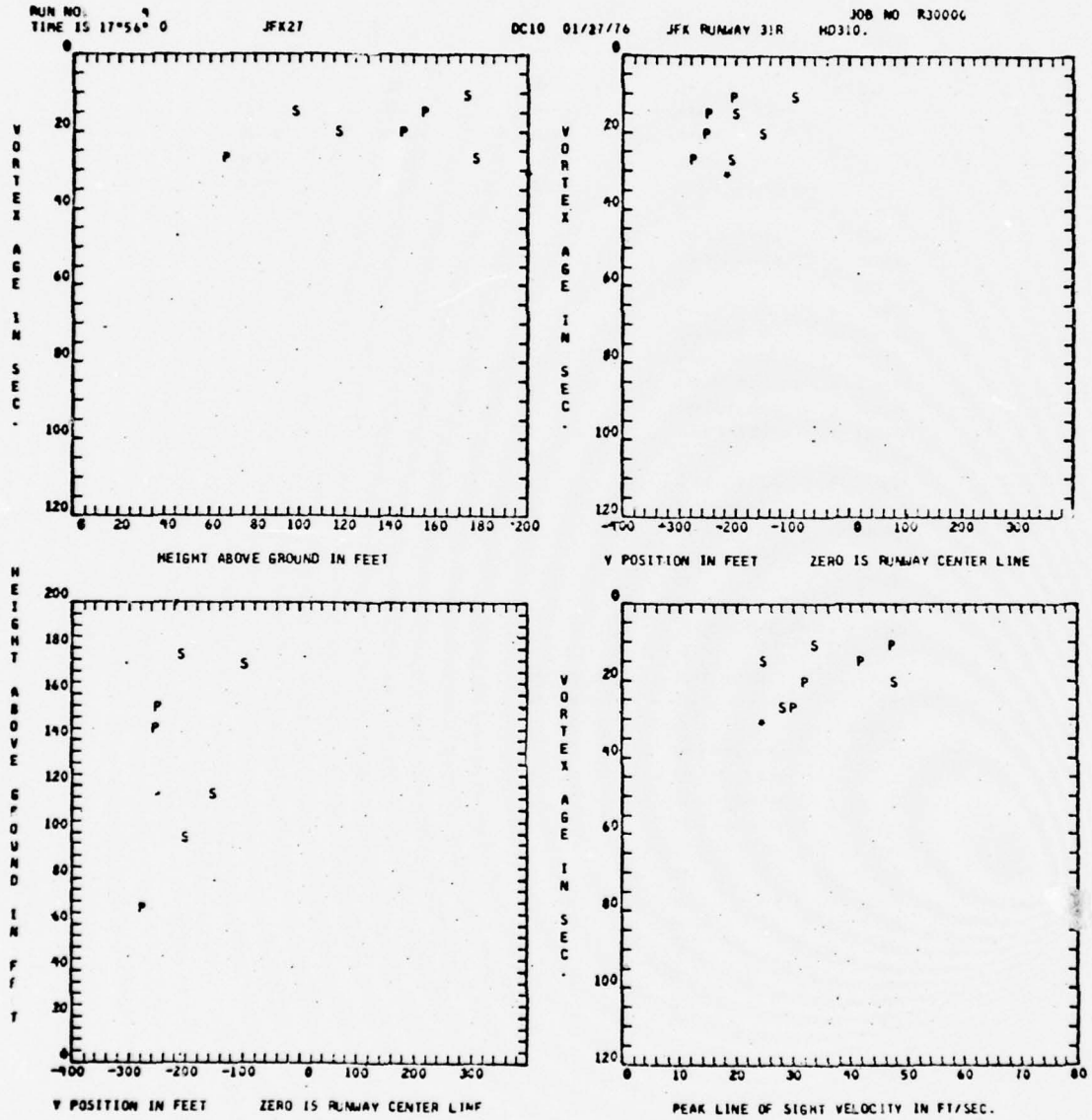
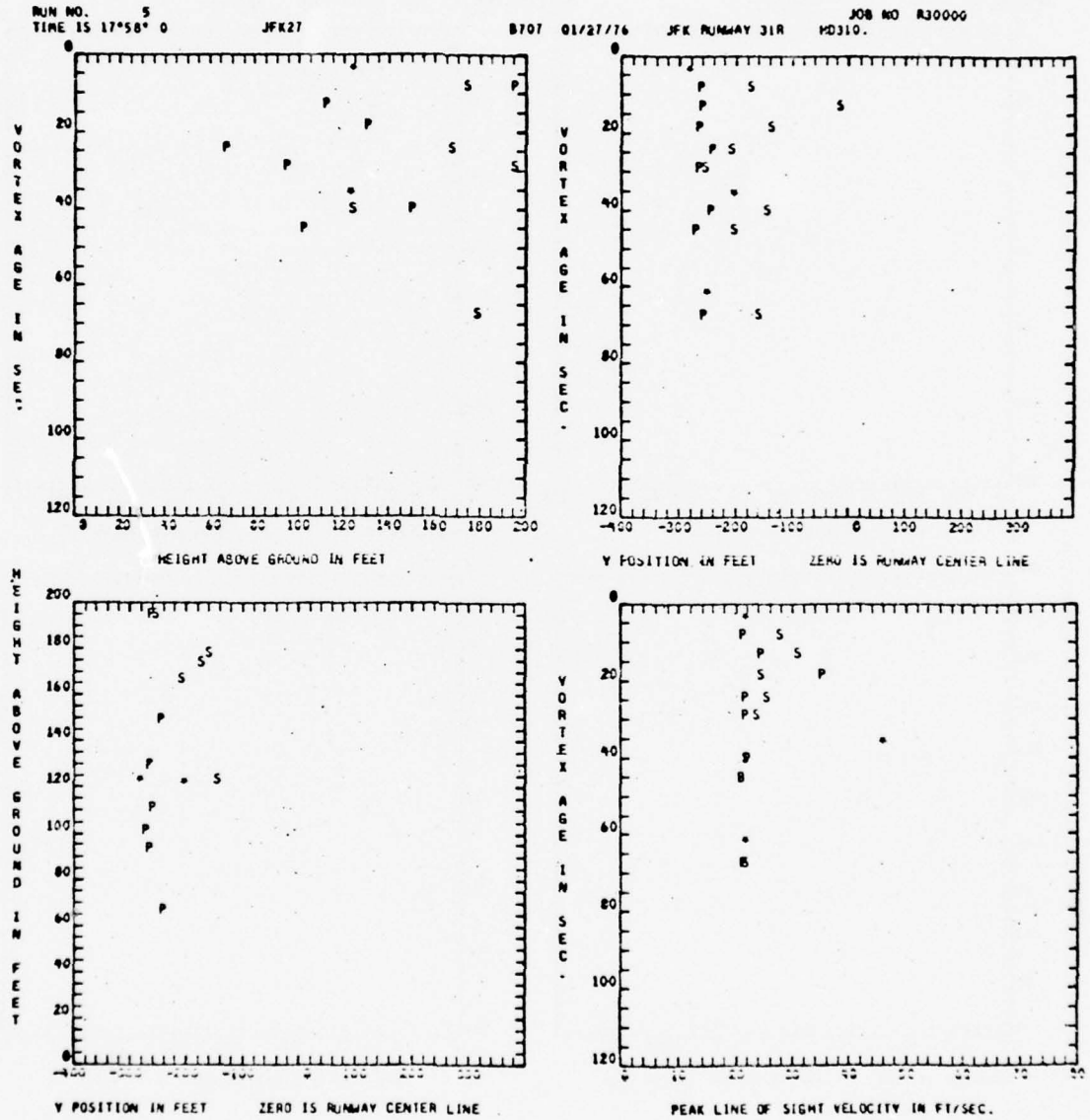
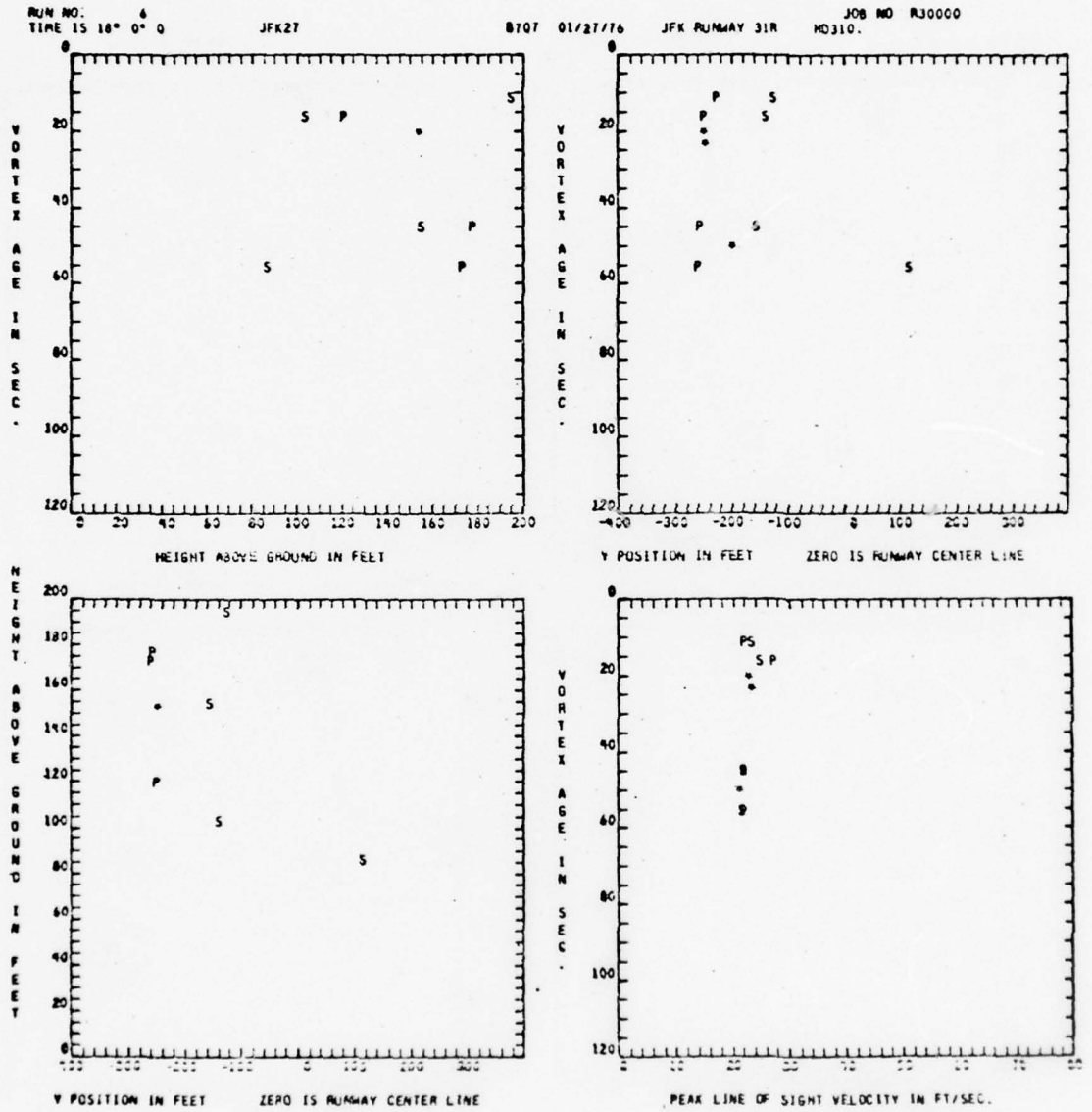
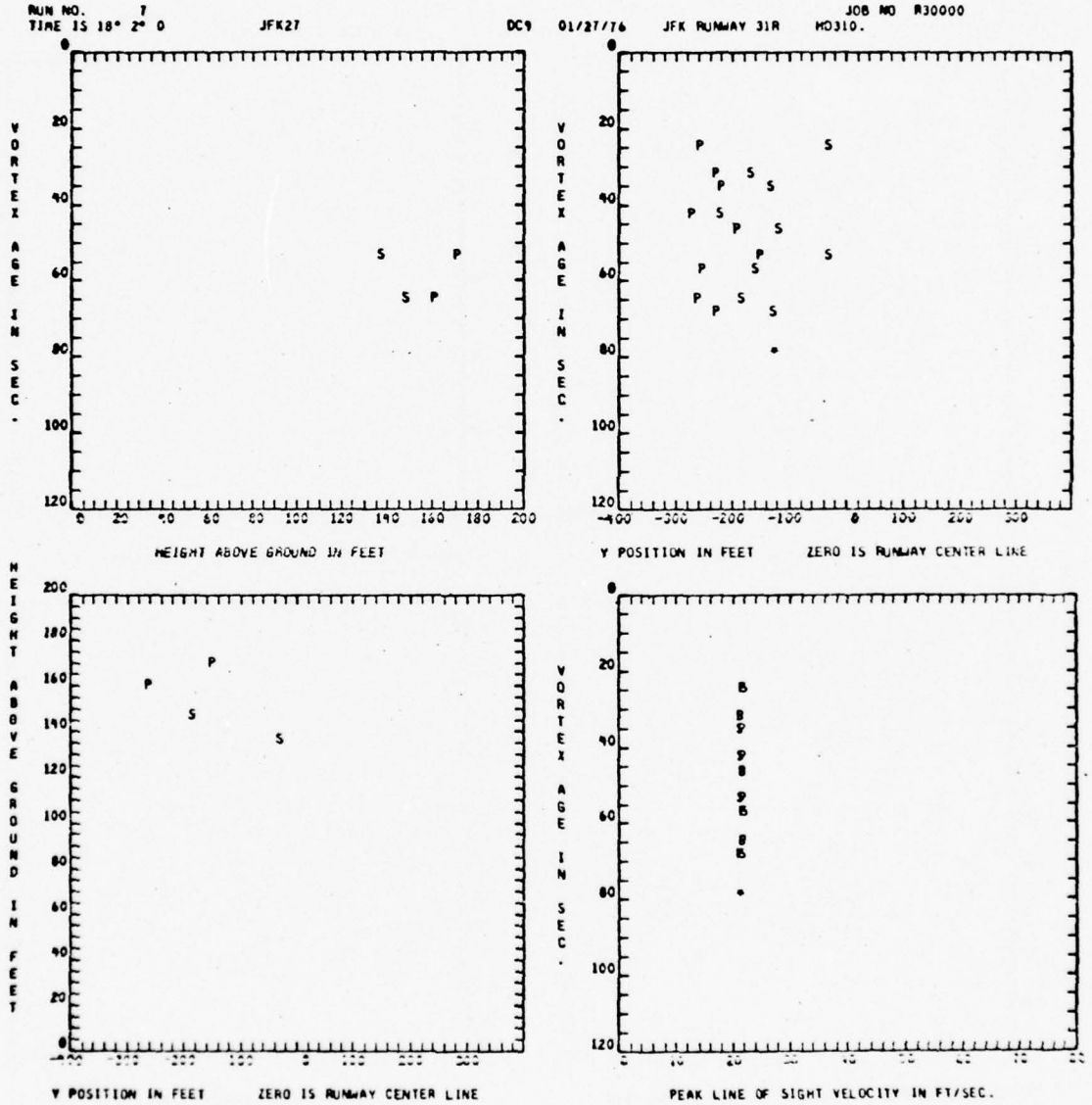
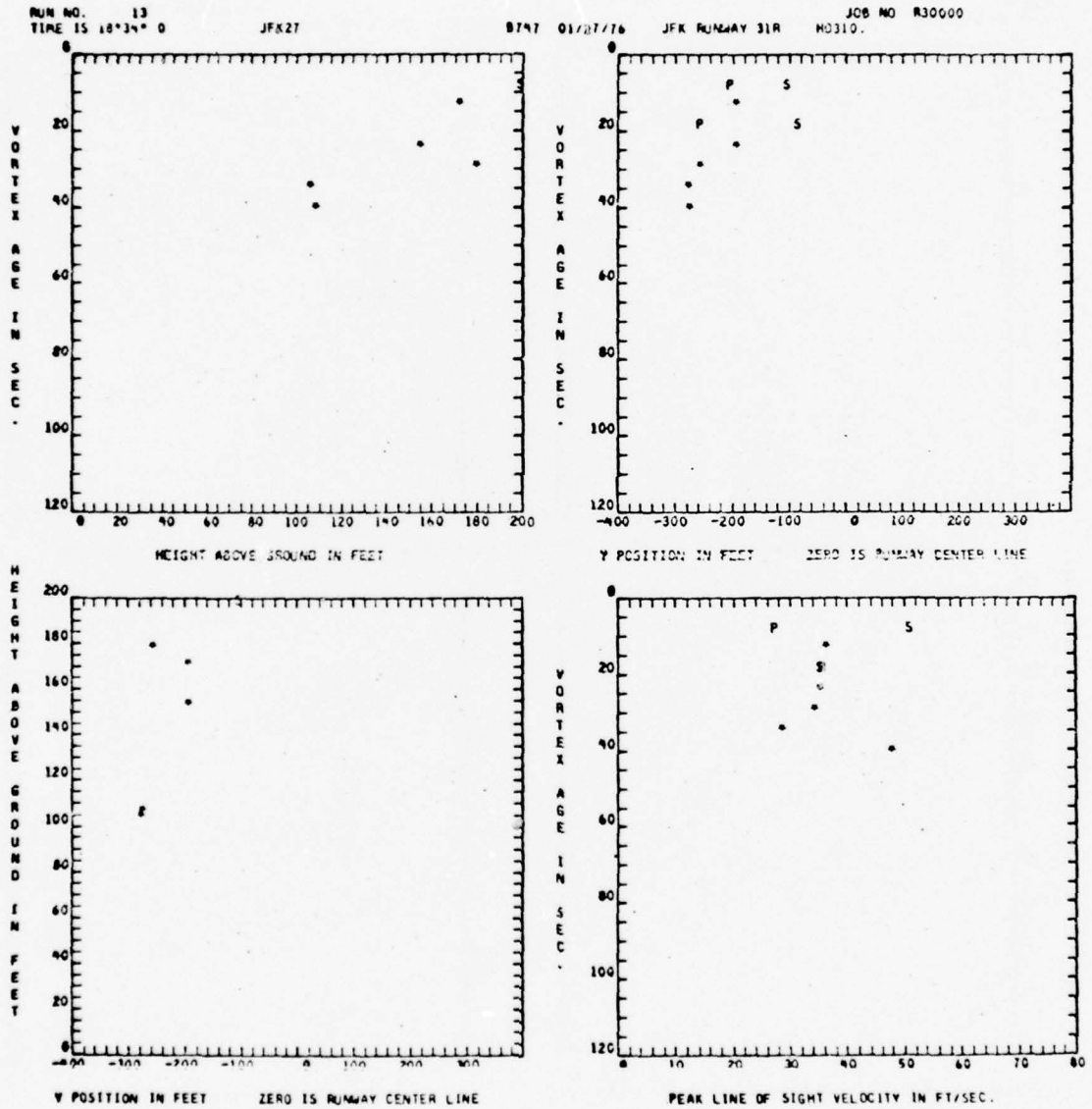
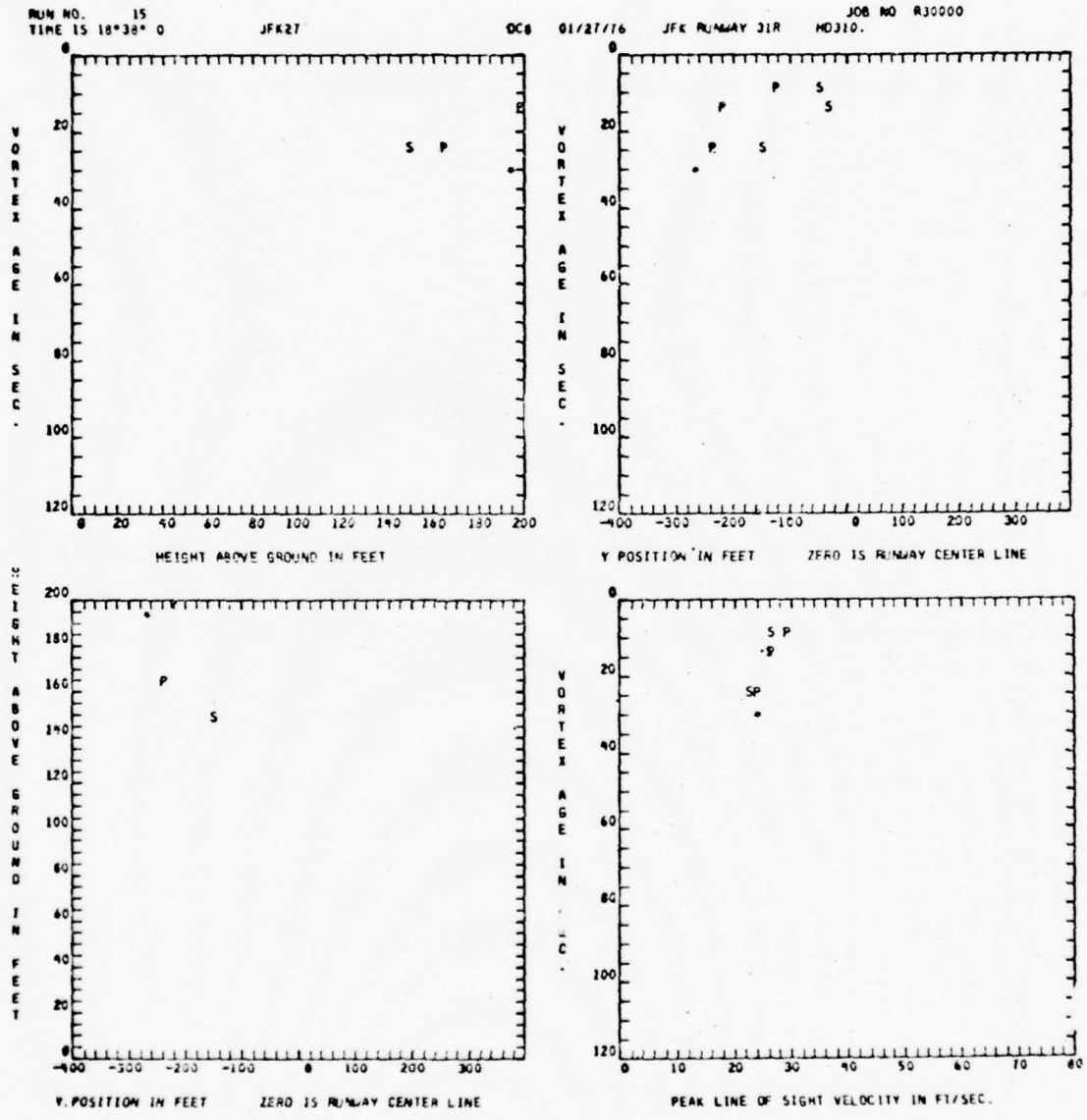

RUN NO. 9
TIME IS 17*56* 0
JFK27
DC10 01/27/76 JFK RUNWAY 31R HD310.
JOB NO RJ0006
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FT
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

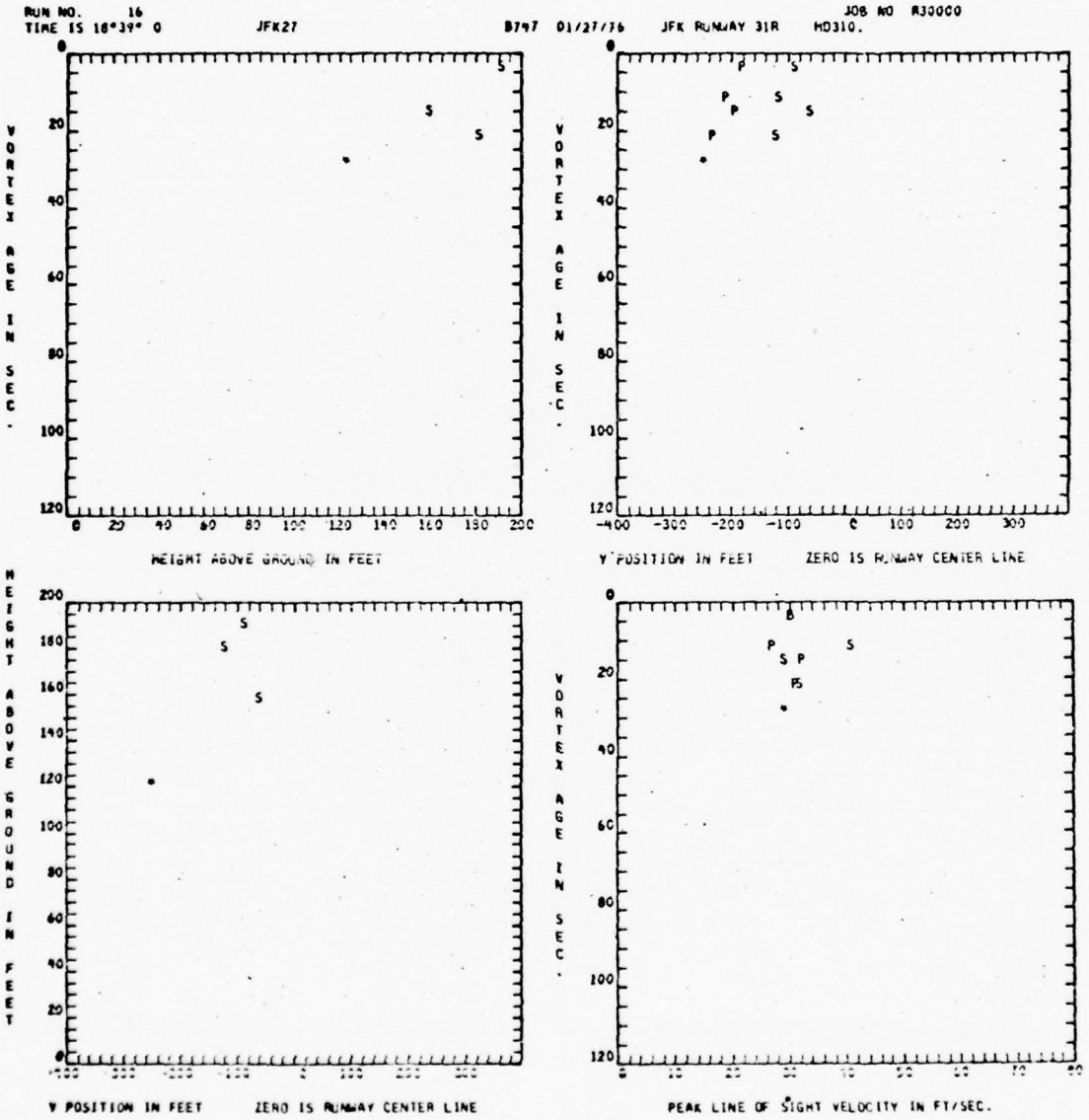

RUN NO. 5
TIME IS 17°58' 0
JFK27
B707 01/27/76 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

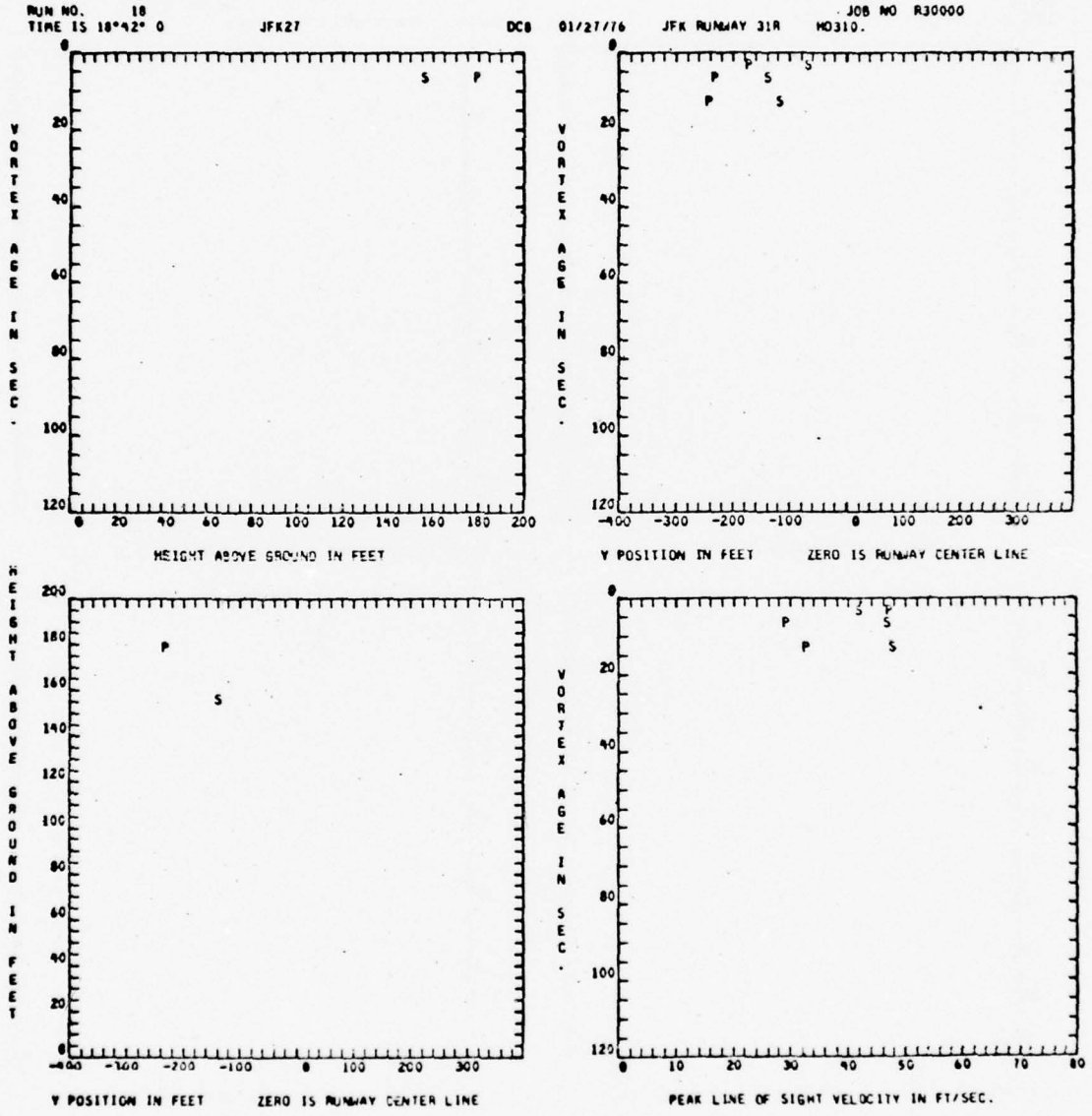

RUN NO: 6
TIME IS 18° 0' 0
JFK27
B707 01/27/76 JFK RUNWAY 31R
JOB NO RJ0000
HD310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

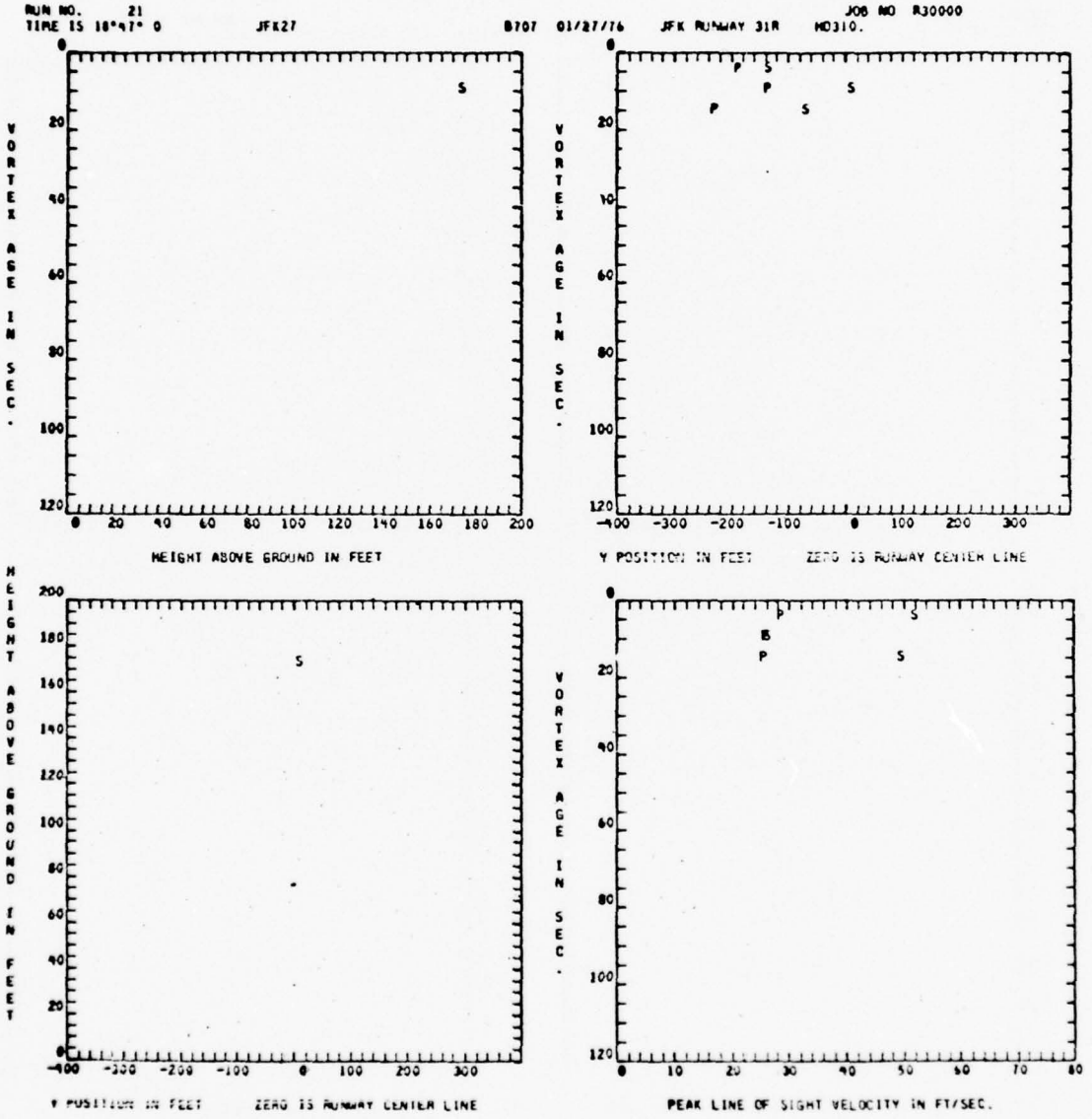

RUN NO. 7
TIME IS 18° 2° 0
JFK27
DC9
01/27/76
JFK RUNWAY 31R
MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

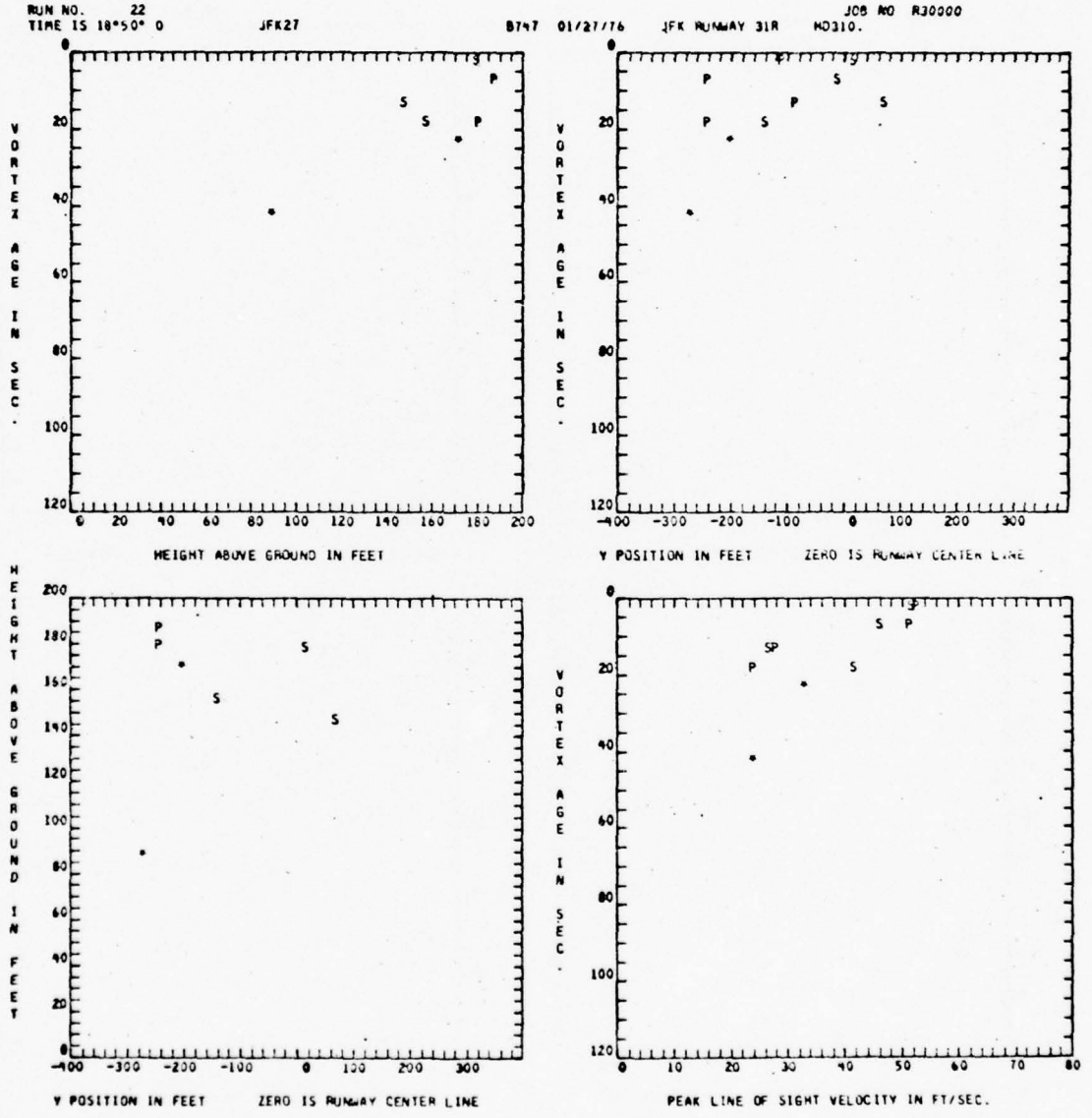

RUN NO. 13
TIME IS 18*34* 0
JFK27
B747 01/27/76
JFK RUNWAY 31R
H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.
P
S

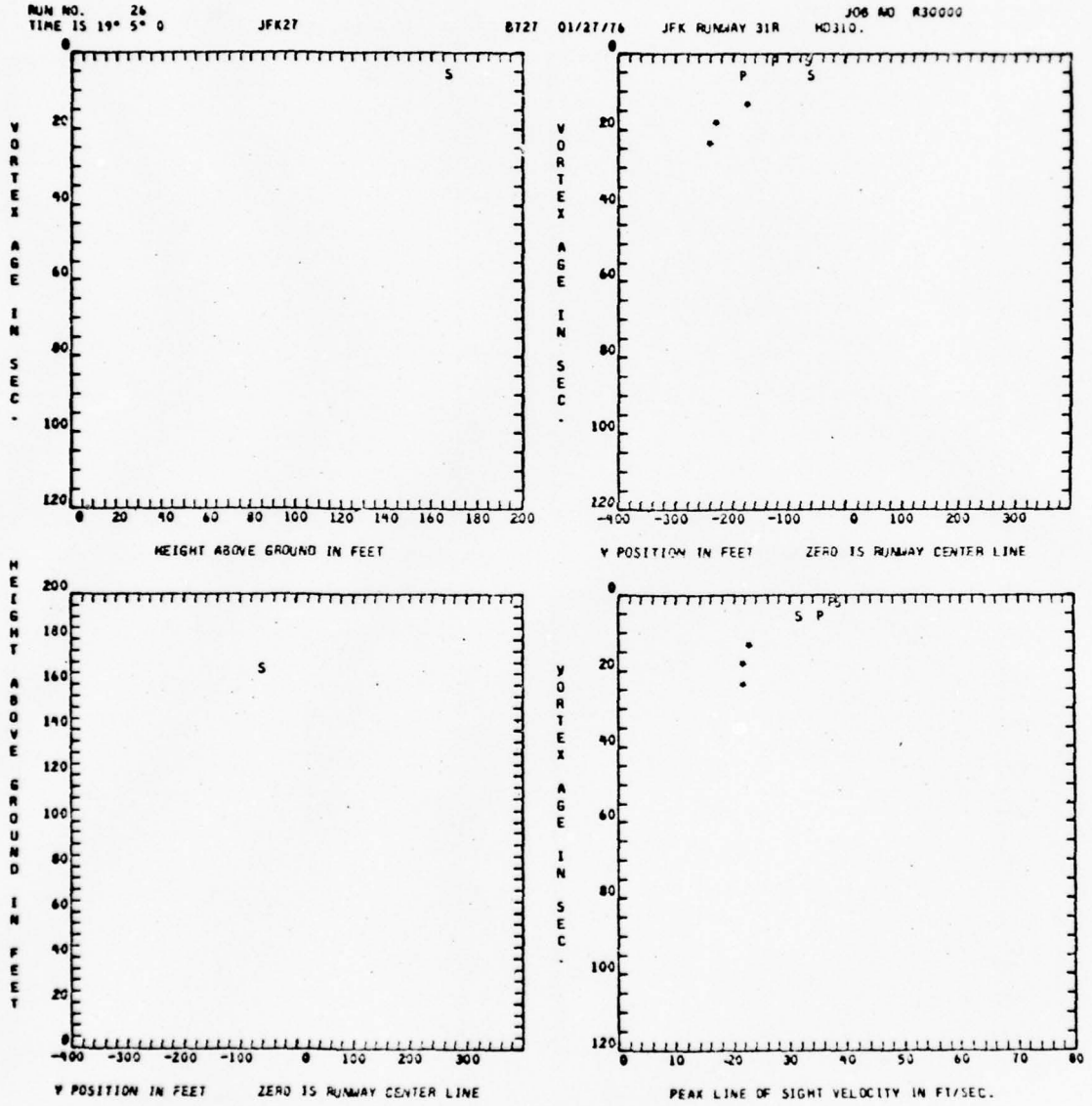

RUN NO. 15
TIME IS 18°38' 0
JFK27
DC8
01/27/76
JFK RUNWAY 31R
MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

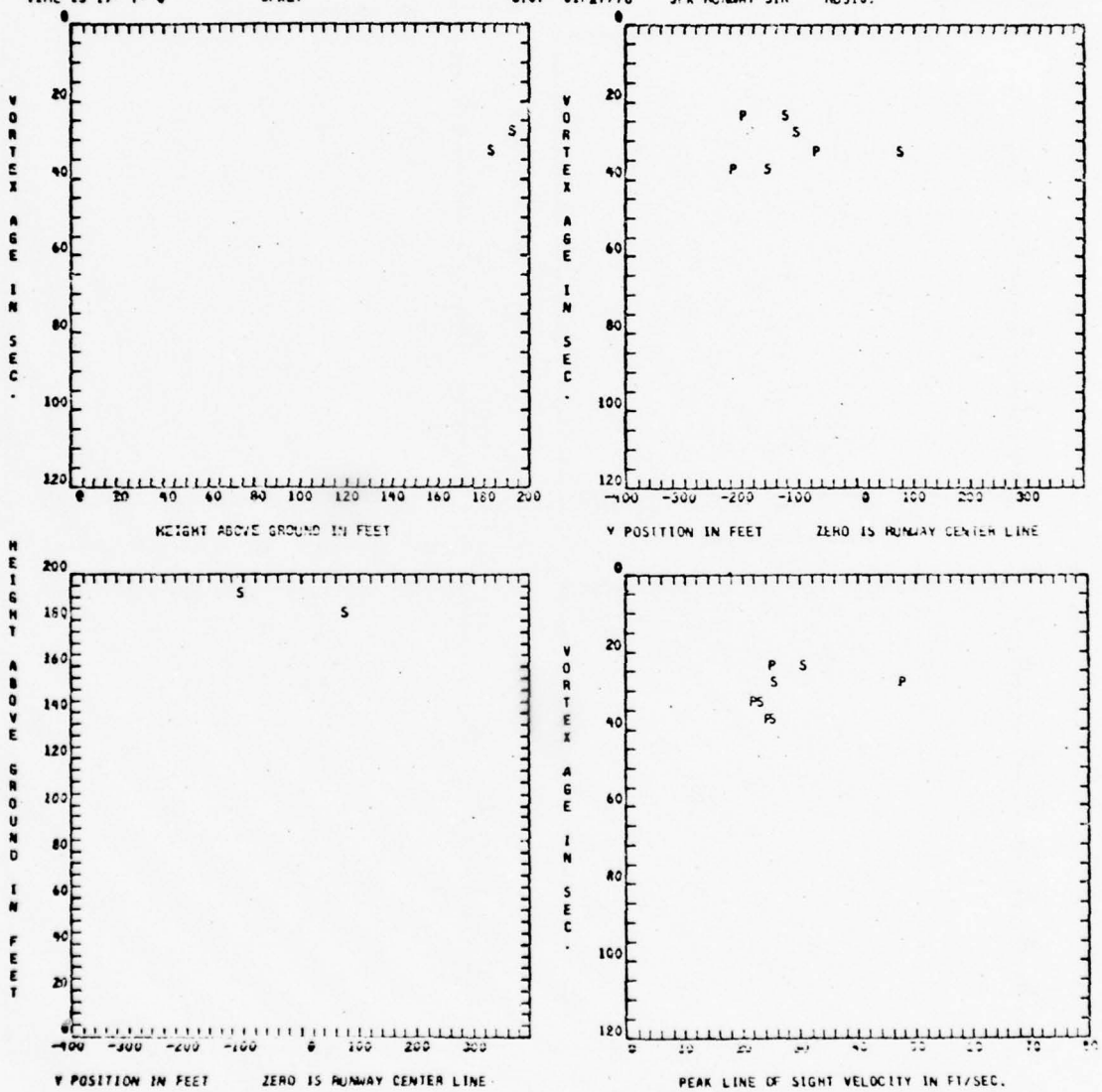

RUN NO. 16
TIME IS 18*39* 0
JFK27
B797 01/27/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

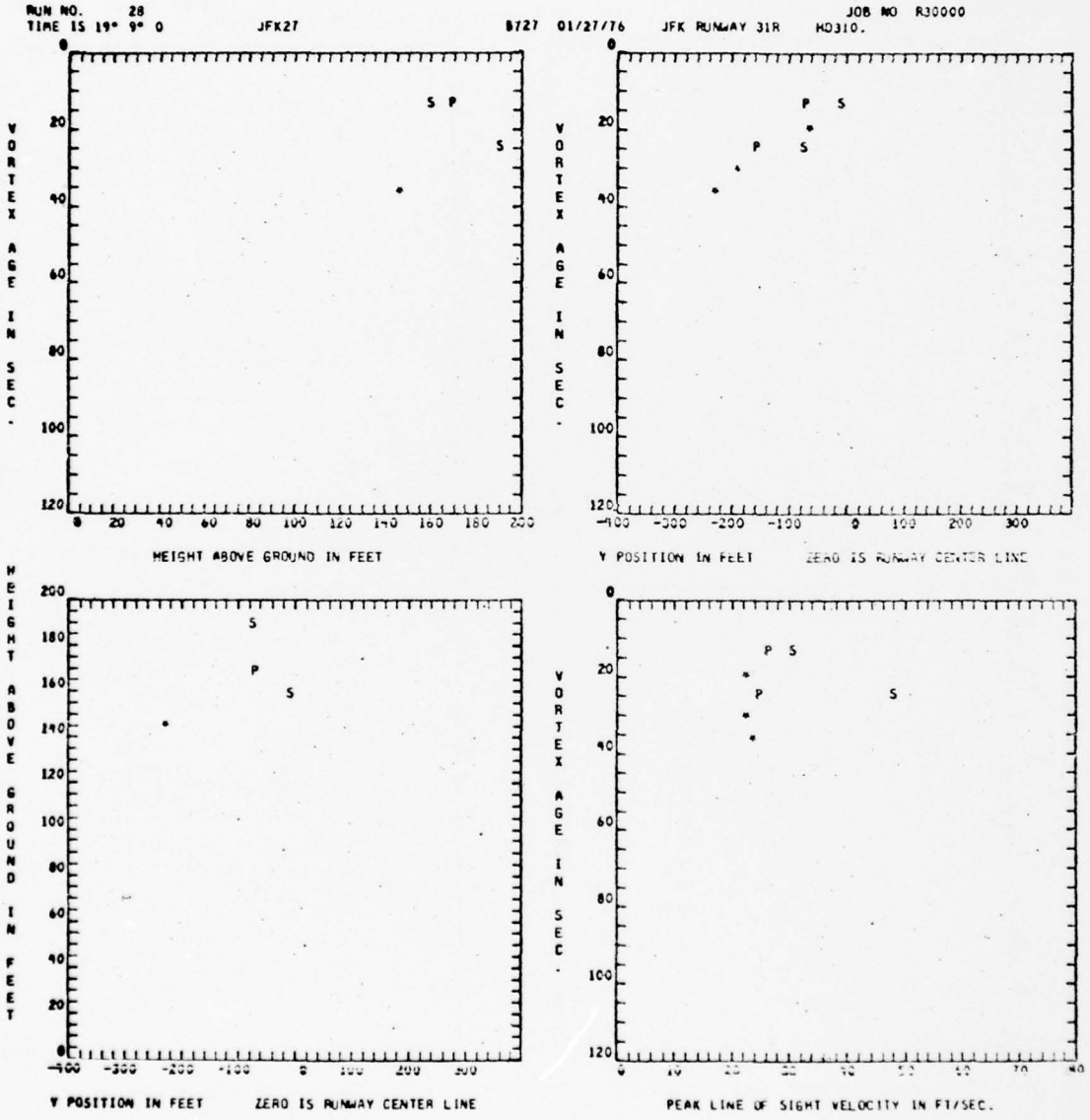

RUN NO. 18
TIME IS 18°42° 0
JFK27
DC8
01/27/76
JFK RUNWAY 31R
JOB NO R30000
H0310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

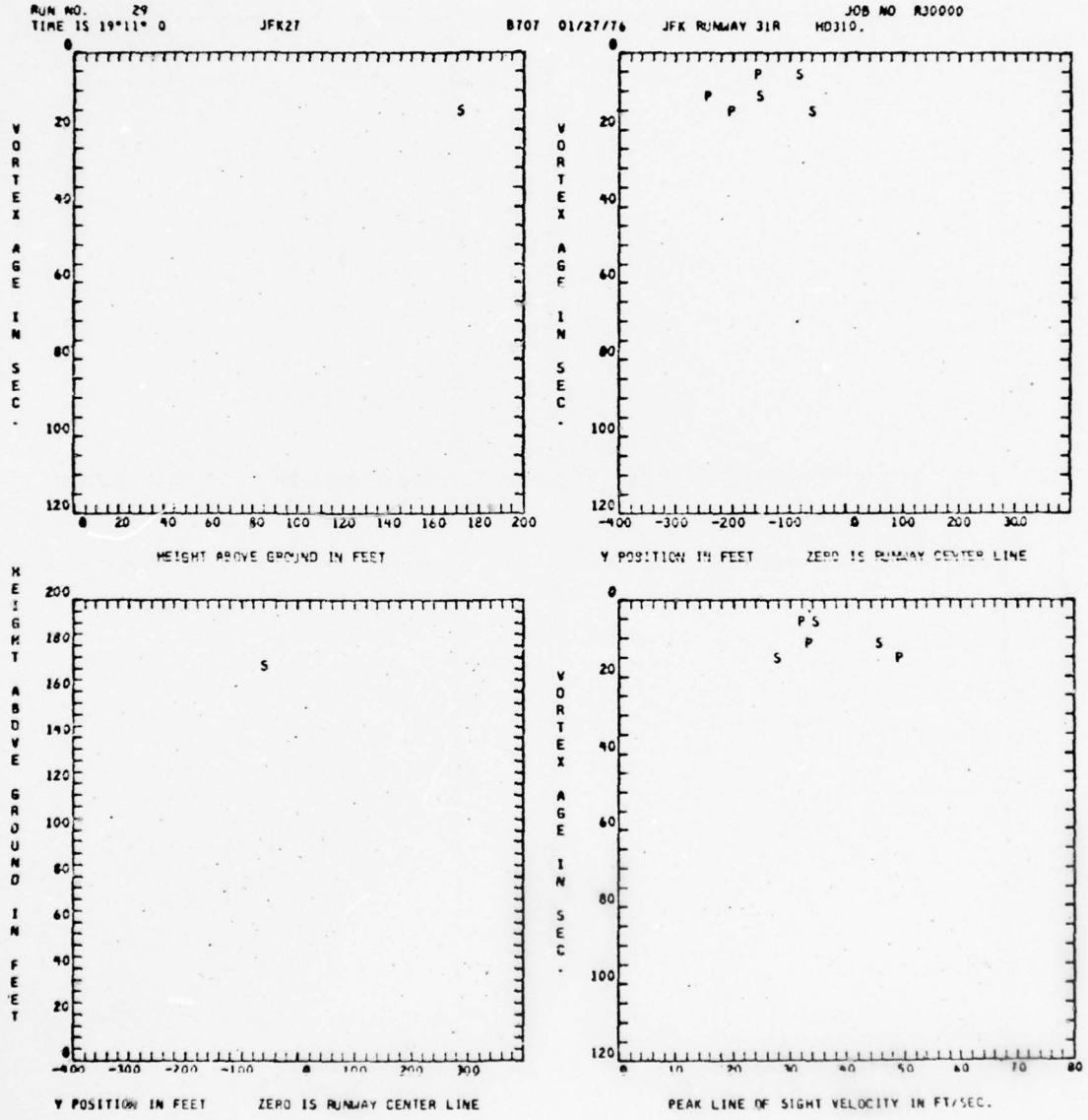

RUN NO. 21
TIME IS 18°47° 0
JFK27
B707 01/27/76 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

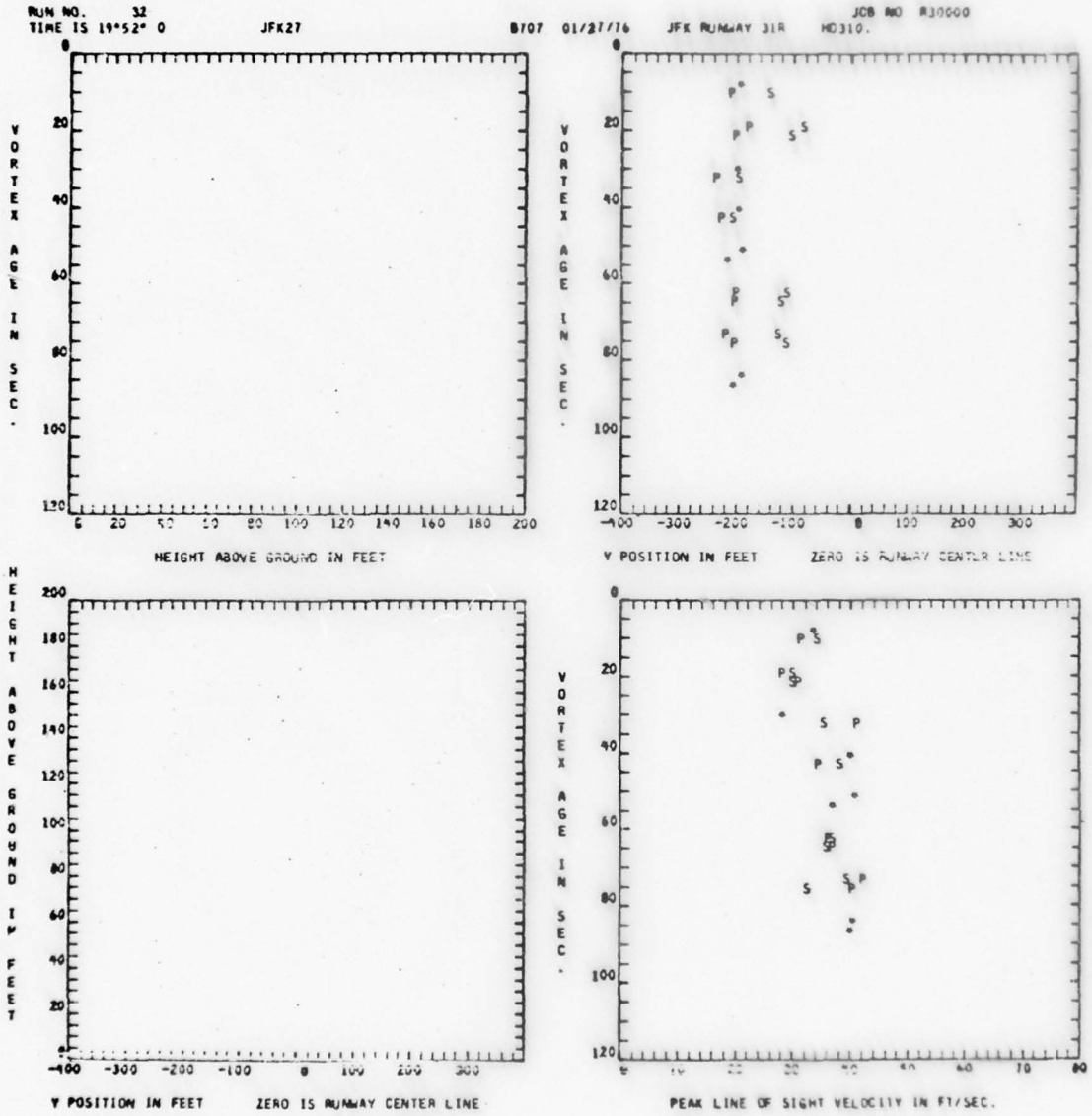

RUN NO. 22
TIME IS 18*50* 0
JFK27
B747 01/27/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

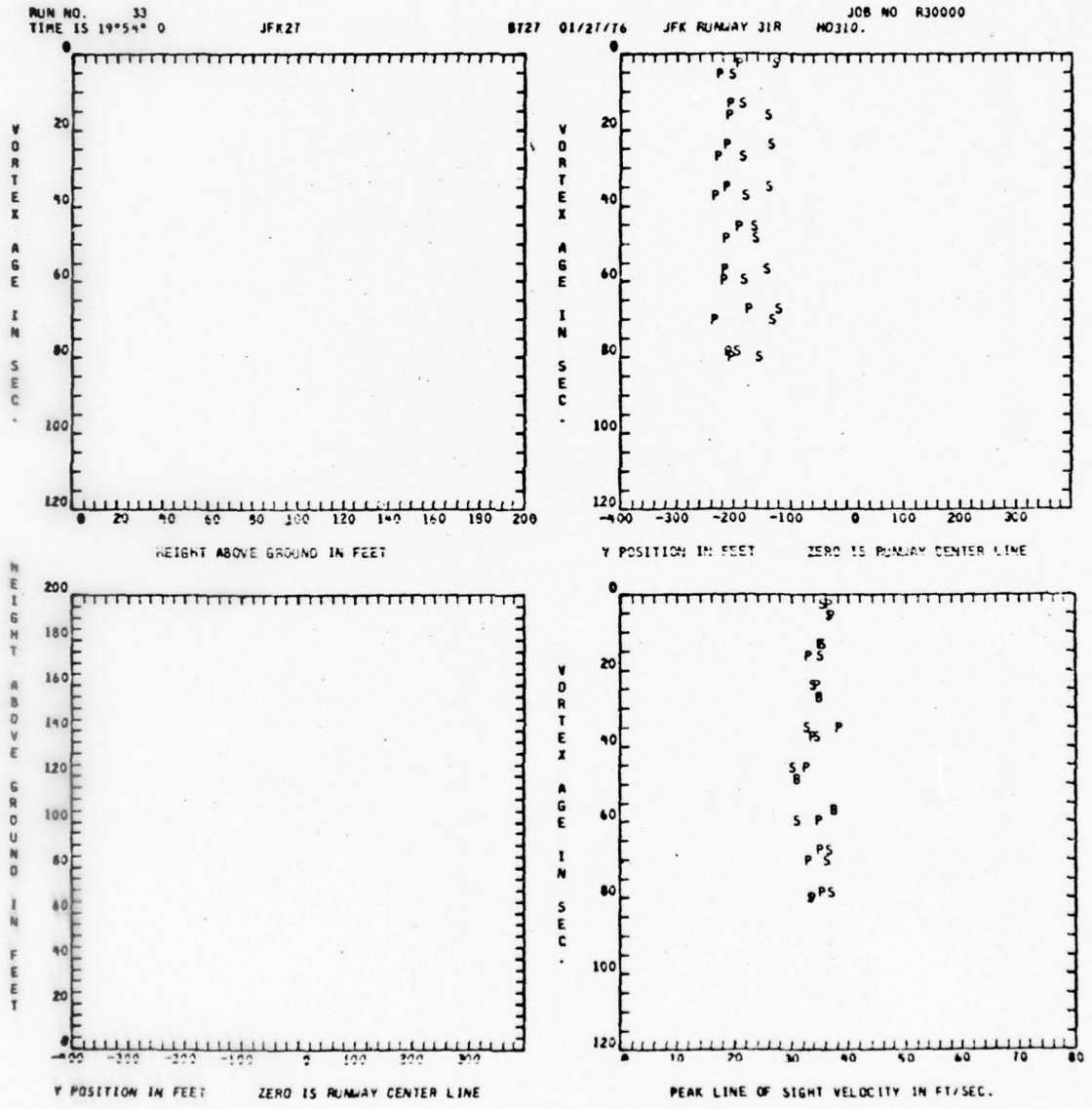

RUN NO. 26
TIME IS 19° 5° 0
JFK27
B727 01/27/76 JFK RUNWAY 31R
JOB NO R30000
M0310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

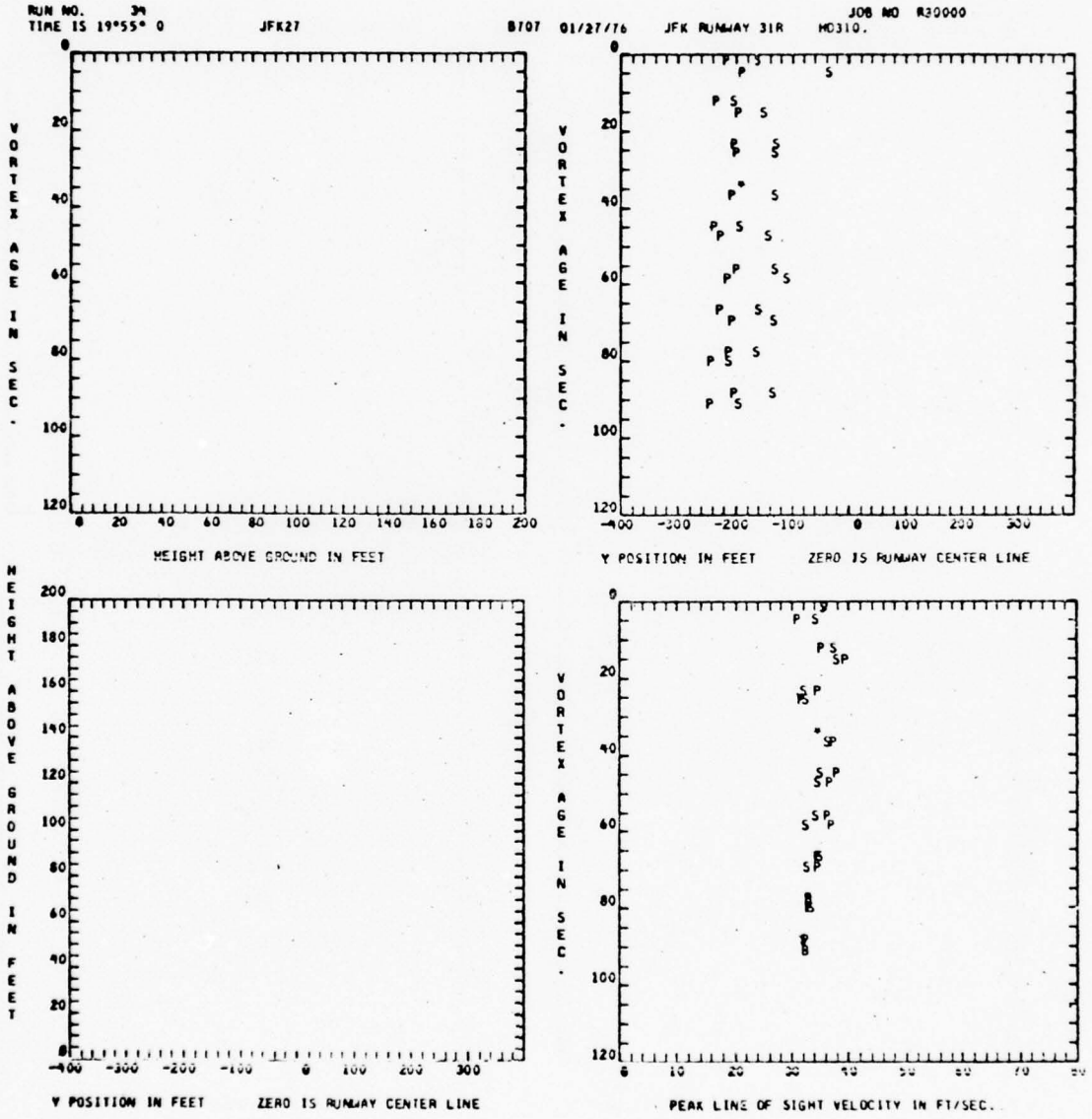

VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
VORTEX AGE IN SEC.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 28
TIME IS 19° 9° 0
JFK27
B727 01/27/76 JFK RUNWAY 31R
JOB NO R30000
HO310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 29
TIME IS 19°11° 0
JFK27
B707 01/27/76 JFK RUNWAY 31R HD310.
JOB NO RJ0000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 32
TIME IS 19*52* 0
JFK27
B707 01/27/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 33
TIME IS 19°54° 0
JFK2T
B727 01/27/76
JFK RUNWAY 31R
HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 39
TIME IS 19°55° 0
JFK27
B707 01/27/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

JFK28

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ISFILE  =          +1,          +1,          +16,          +16,
                +1000,       +1000,       +1000,        +1000,
                +1000,       +1000,       +1000,        +1000,
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ZLASER  =  .70000000E+01
ZLASCN  =  .00000000E+00
INTVEL  =          +2
NPSUF   =          +4
APERCT  =  .10000000E+00
BPERCT  =  .10000000E+00
CPERCT  =  .50000000E+00
RPERCT  =  .31415927E+00
EPERCT  =  .15000000E+01
NOISEF  =          +0
ADJ1    =  .00000000E+00
ANGSW   =  .00000000E+00
WANGLE  =  .00000000E+00
WINDHP  =  .00000000E+03
LFLIP   =          +3
ISINE   =          +2
EDIT    =  .20000000E+00
MOVAVE  =          +5
YLIM    =  .00000000E+00,  .00000000E+00
ZLIM    =  .00000000E+00,  .00000000E+00
ISCALE  =          +1
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ZT      =  .20000000E+03
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VMAX    =  .80000000E+02
NSPLT   =         +12
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IOP4    =          +1

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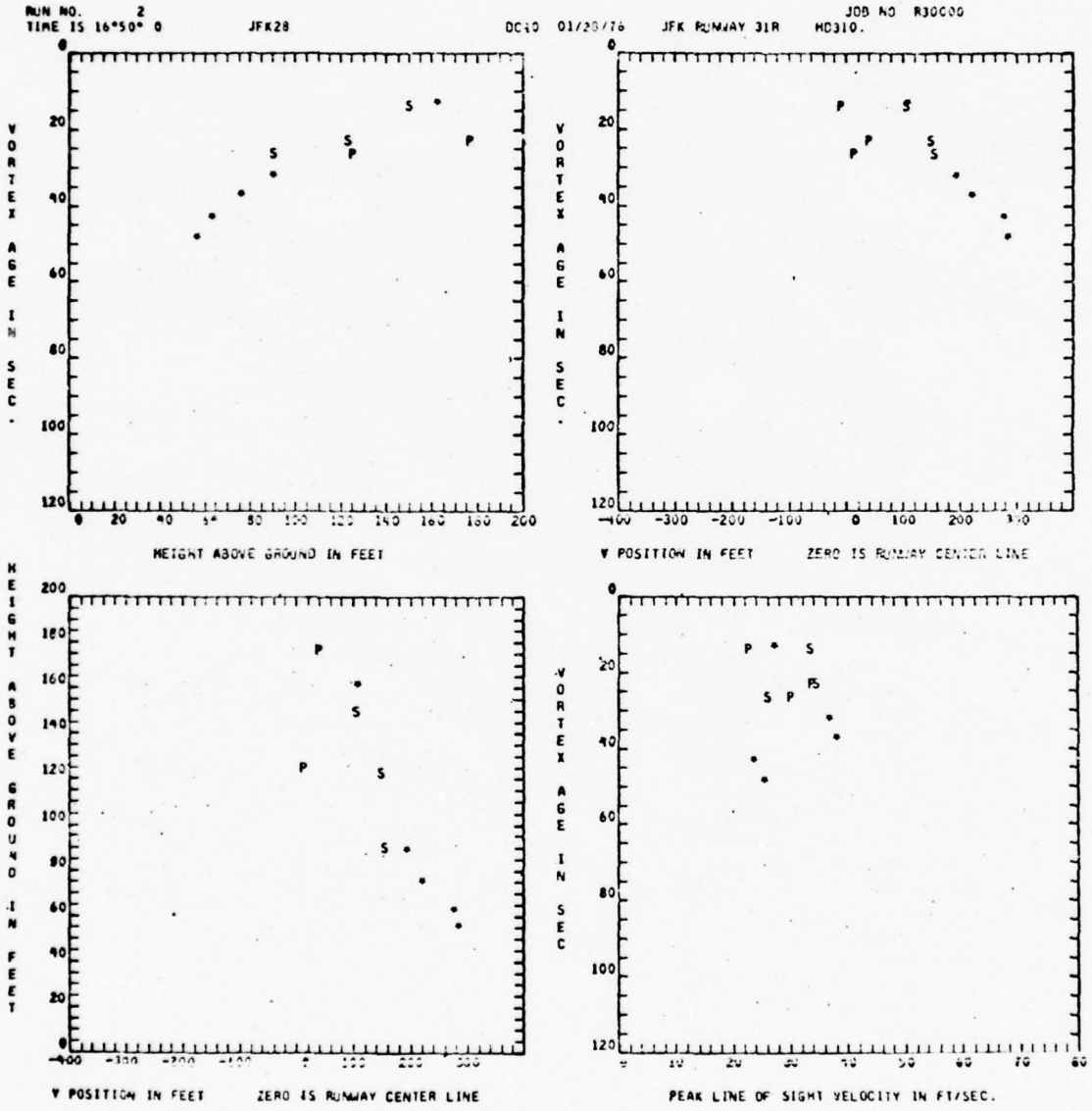
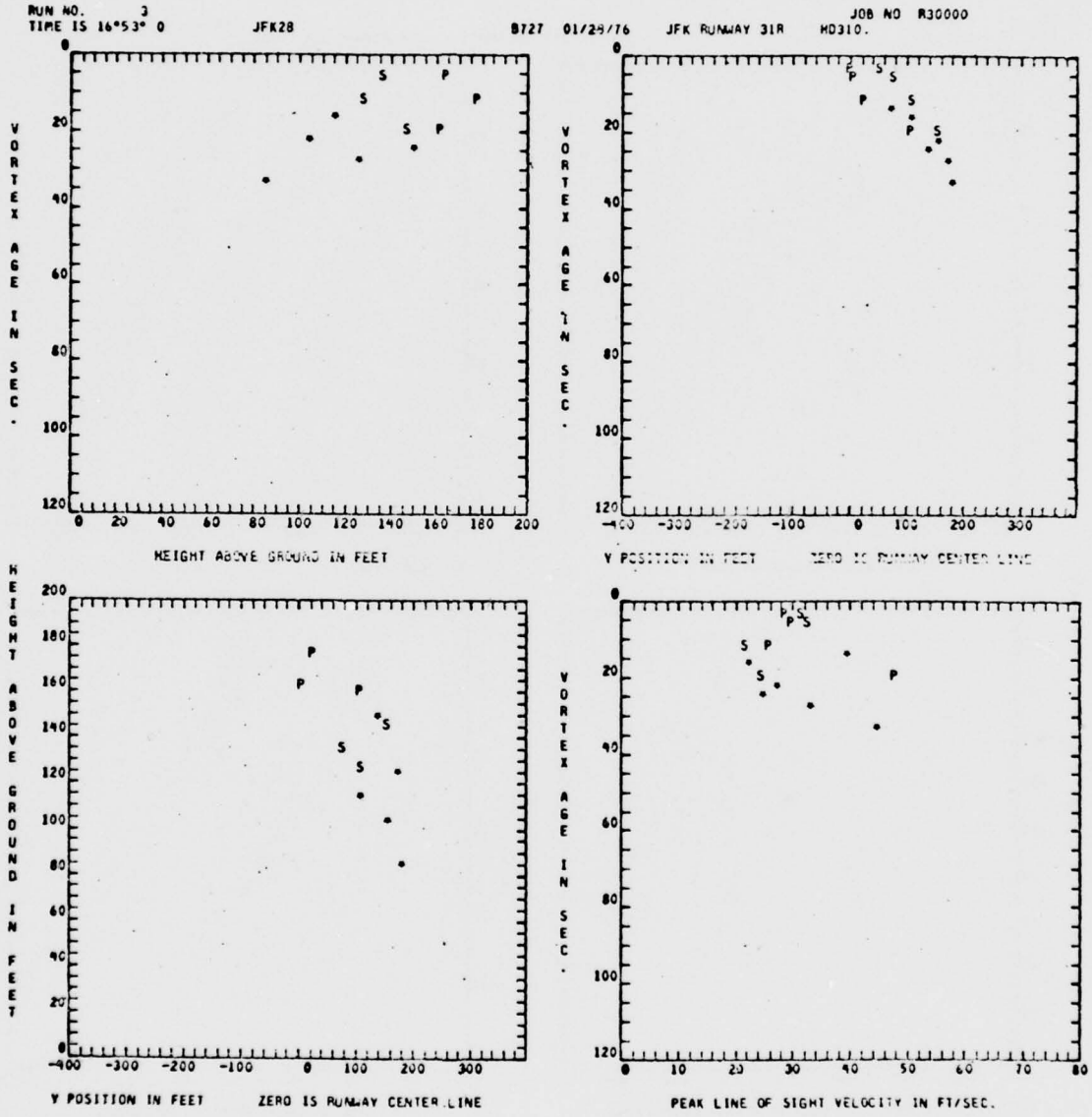
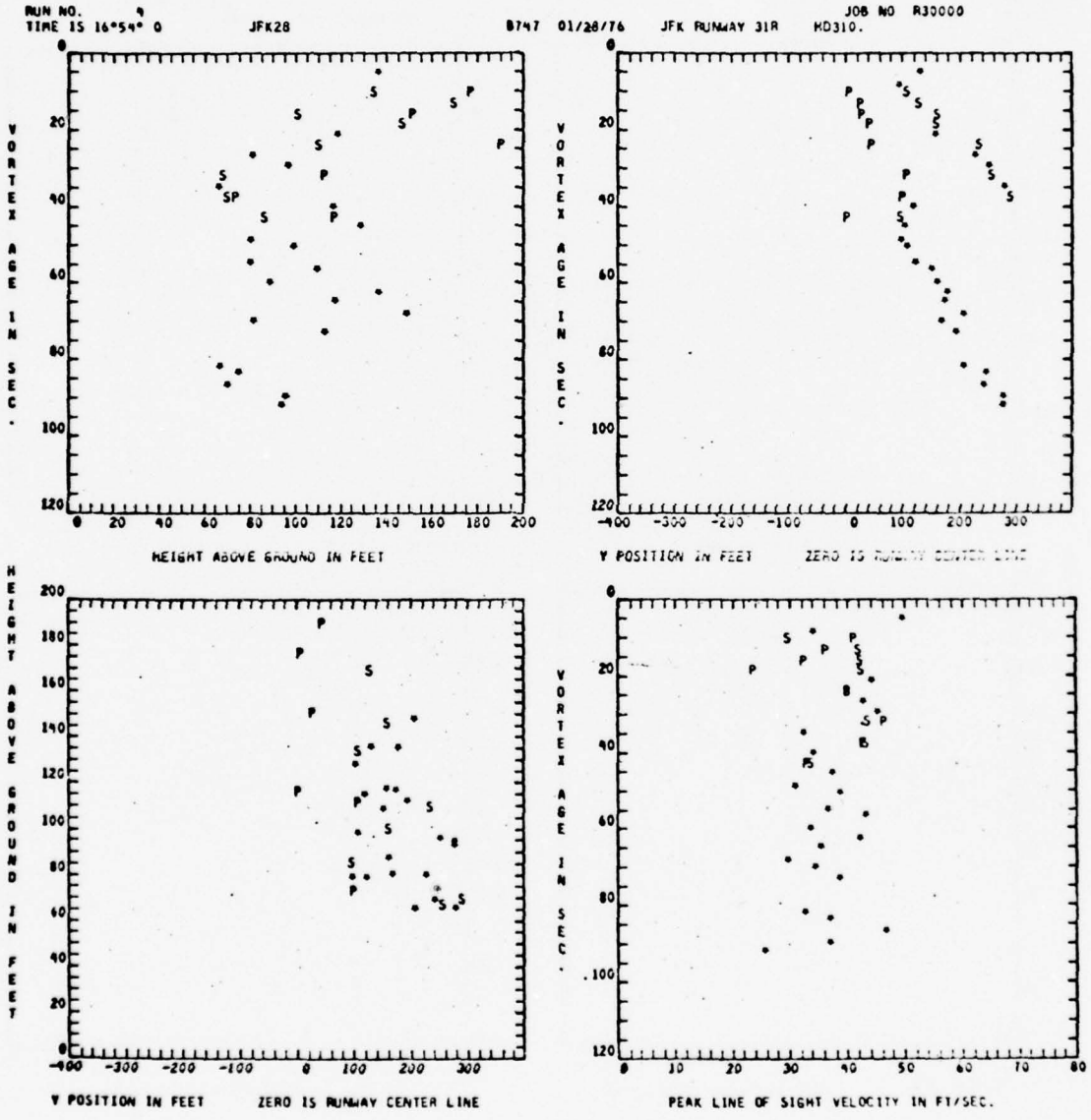
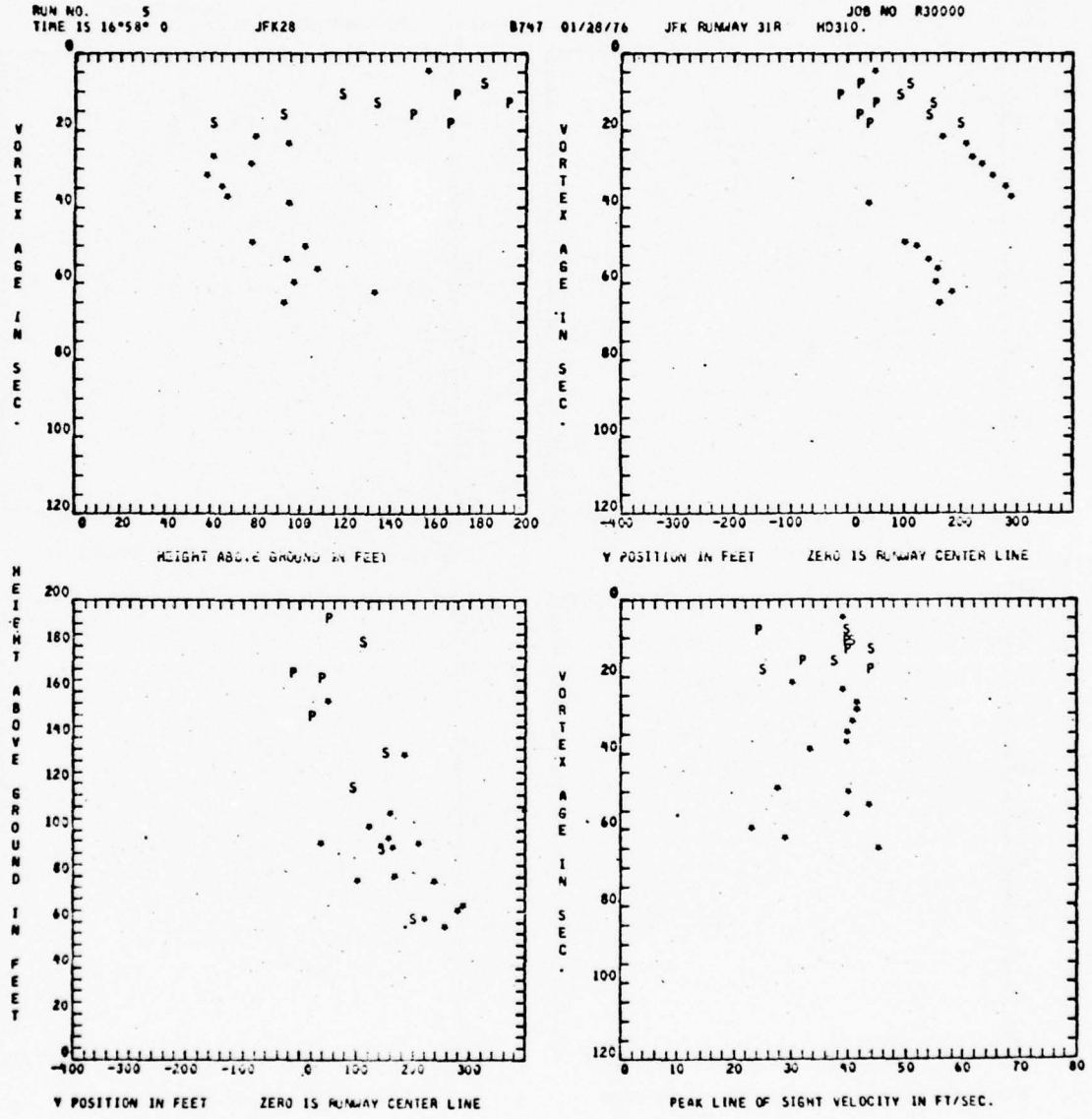
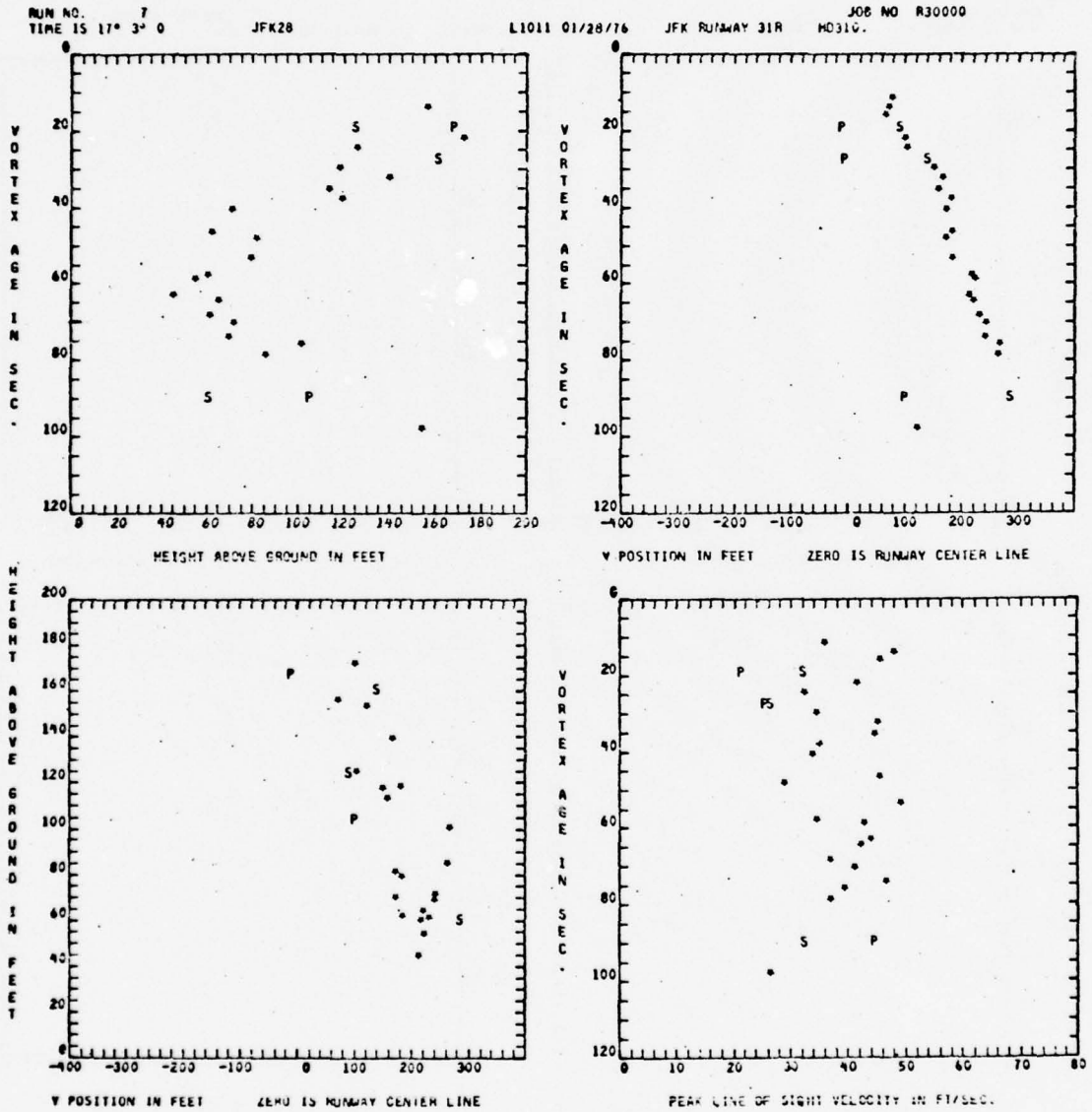
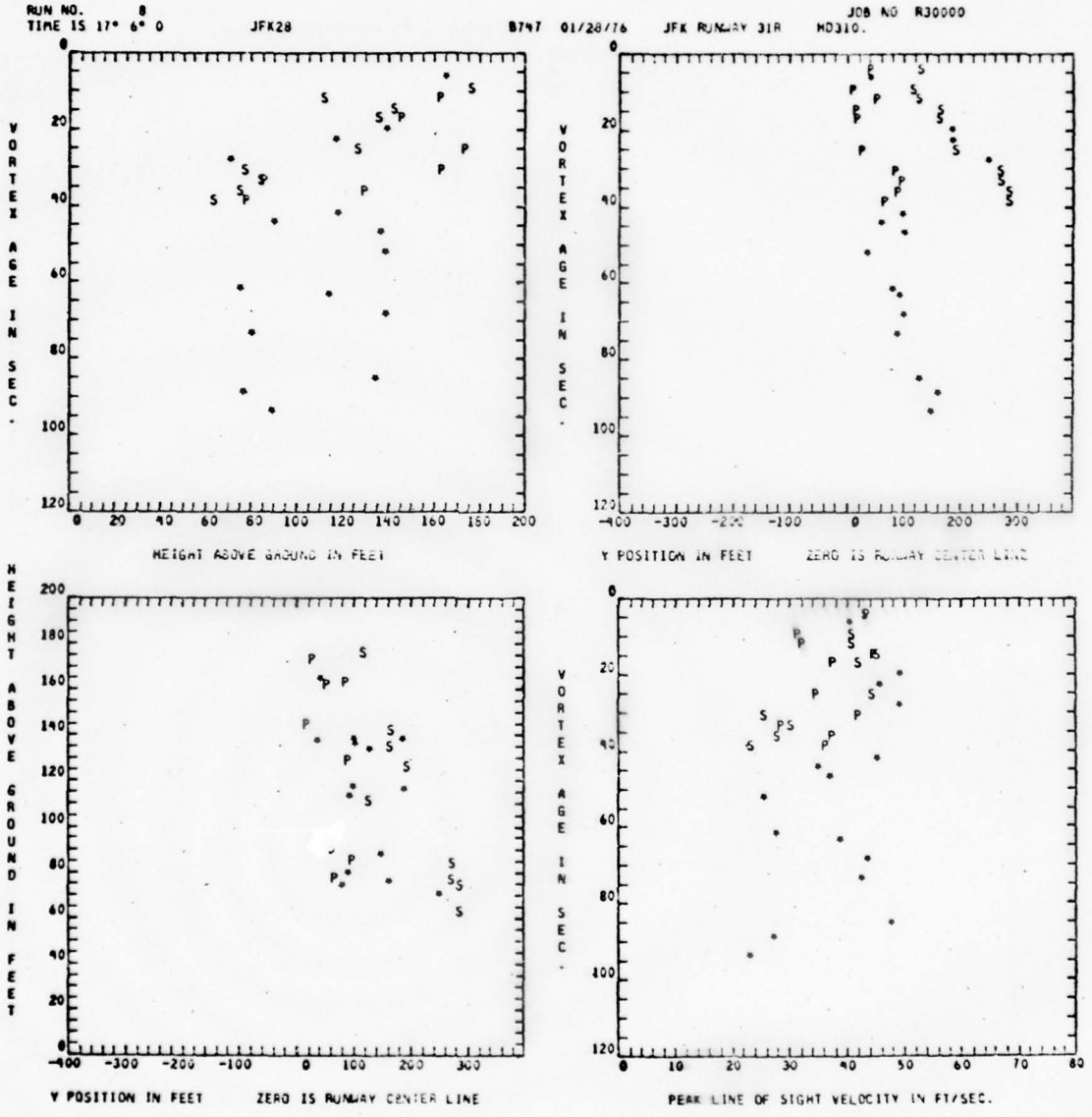

RUN NO. 2
TIME IS 16*50* 0
JFK28
DC10 01/20/76 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

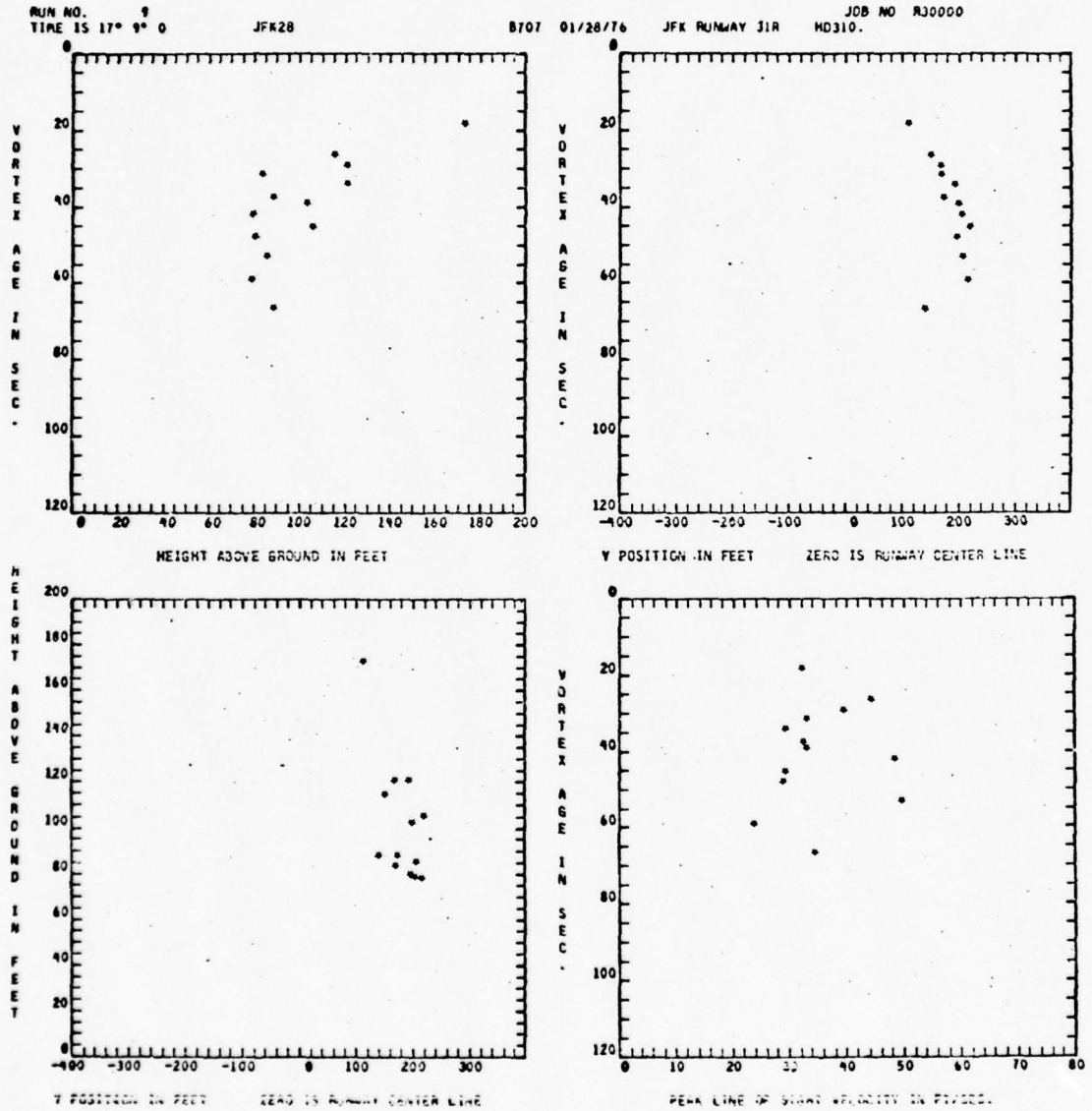

RUN NO. 3
TIME IS 16°53° 0
JFK28
B727 01/29/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

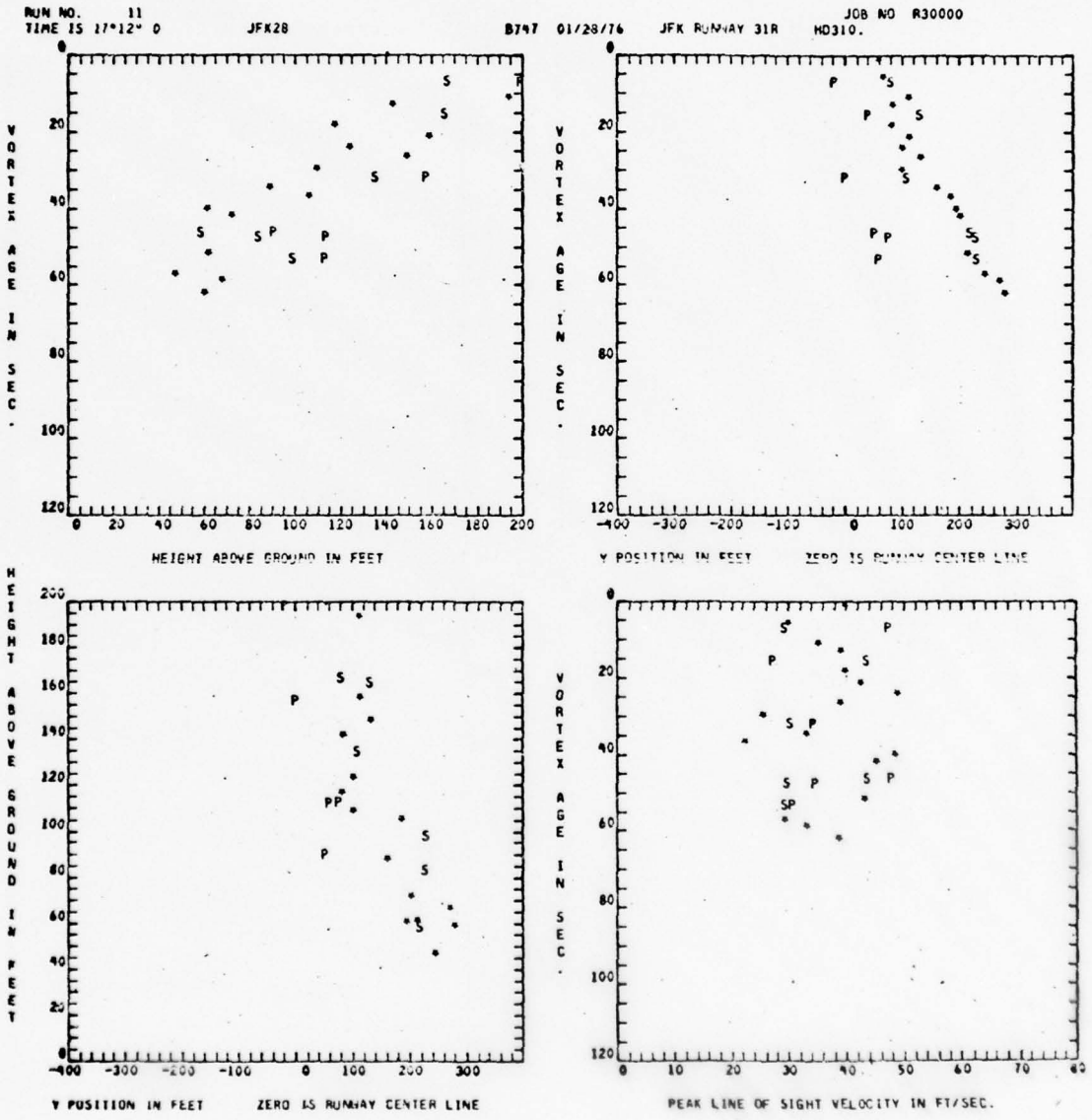

RUN NO. 9
TIME IS 16*54* 0
JFK28
B747 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

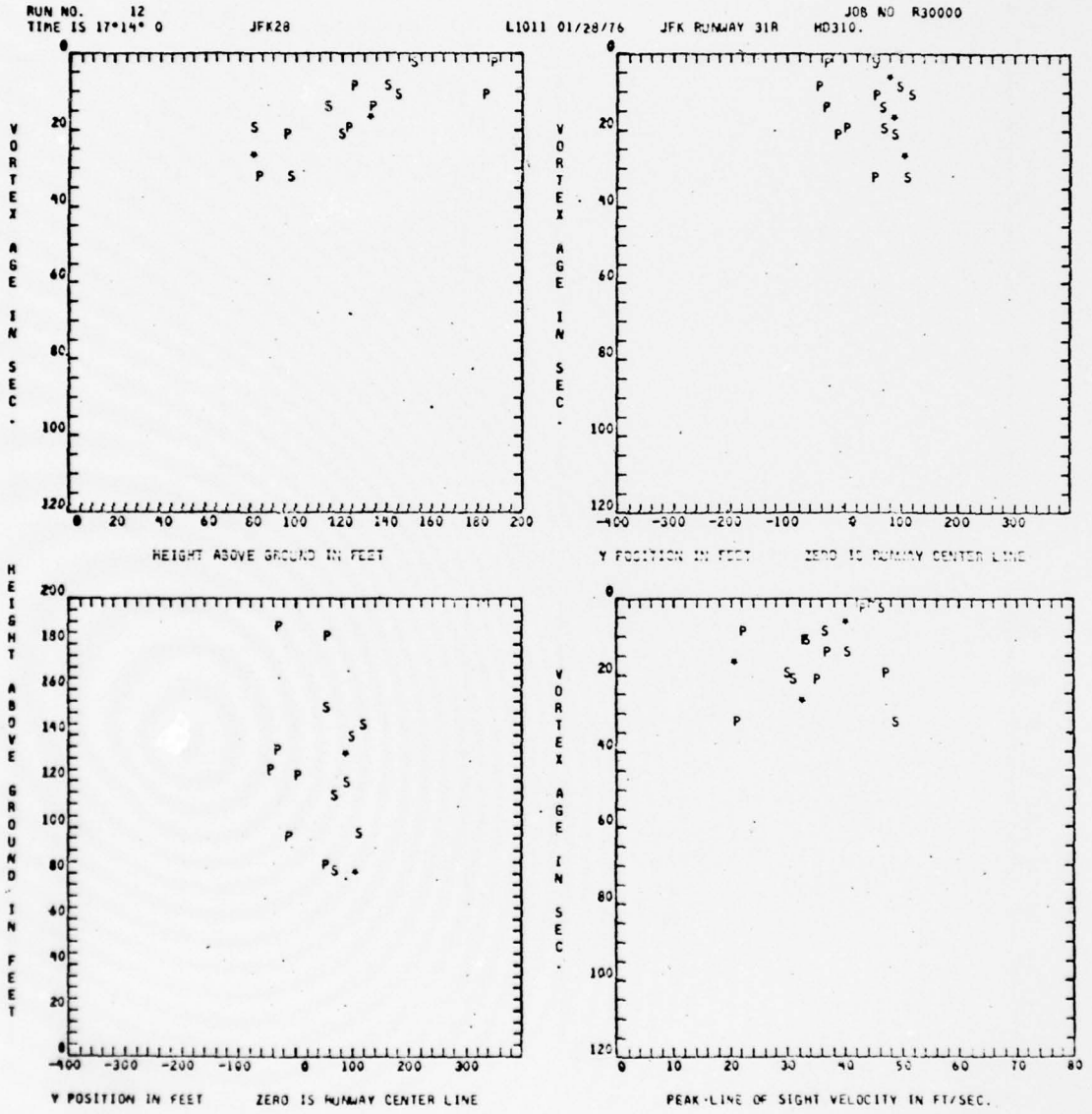

RUN NO. 5
TIME IS 16°58° 0
JFK28
B747 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

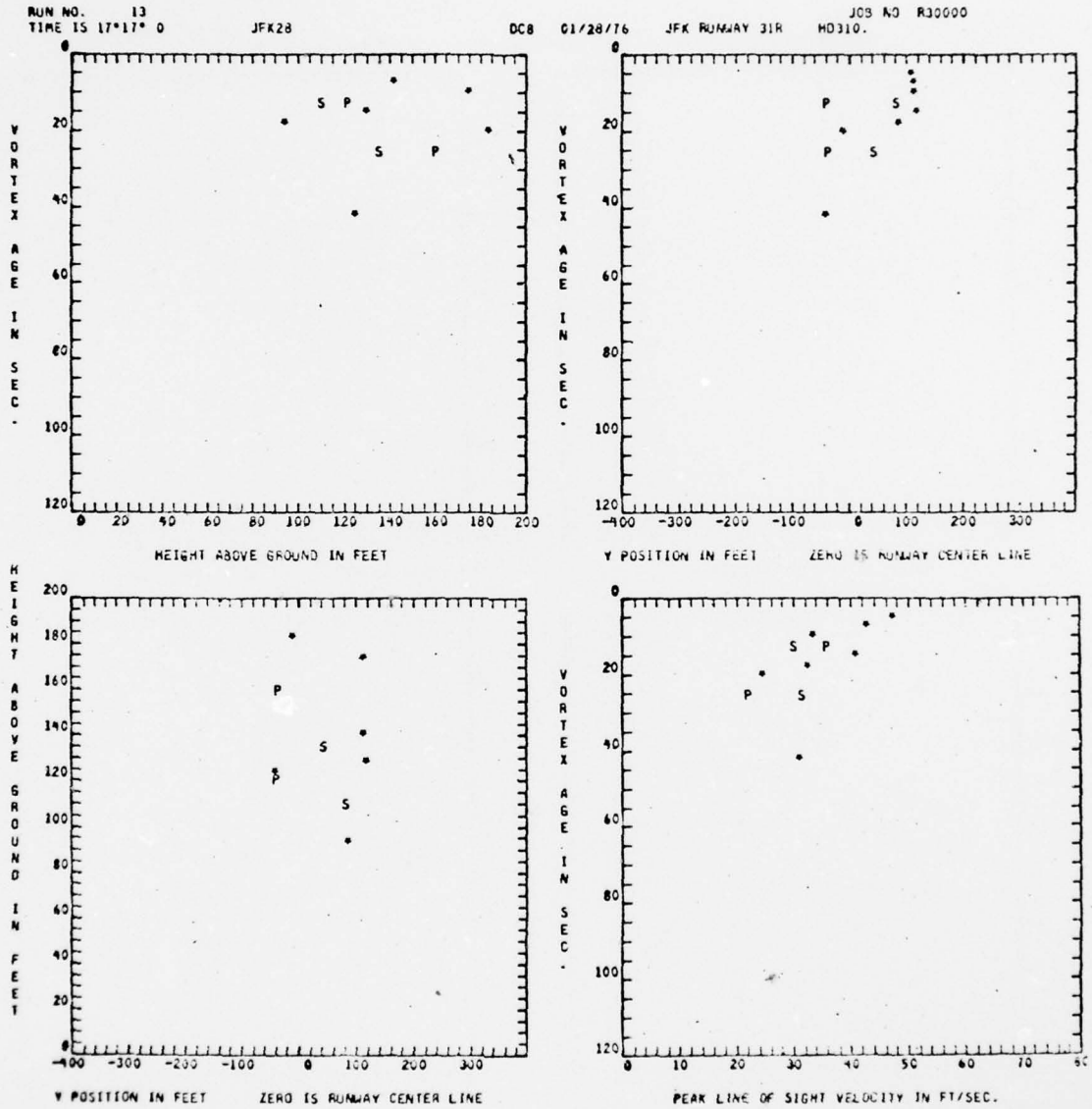

RUN NO. 7
TIME IS 17° 3' 0
JFK28
L1011 01/28/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

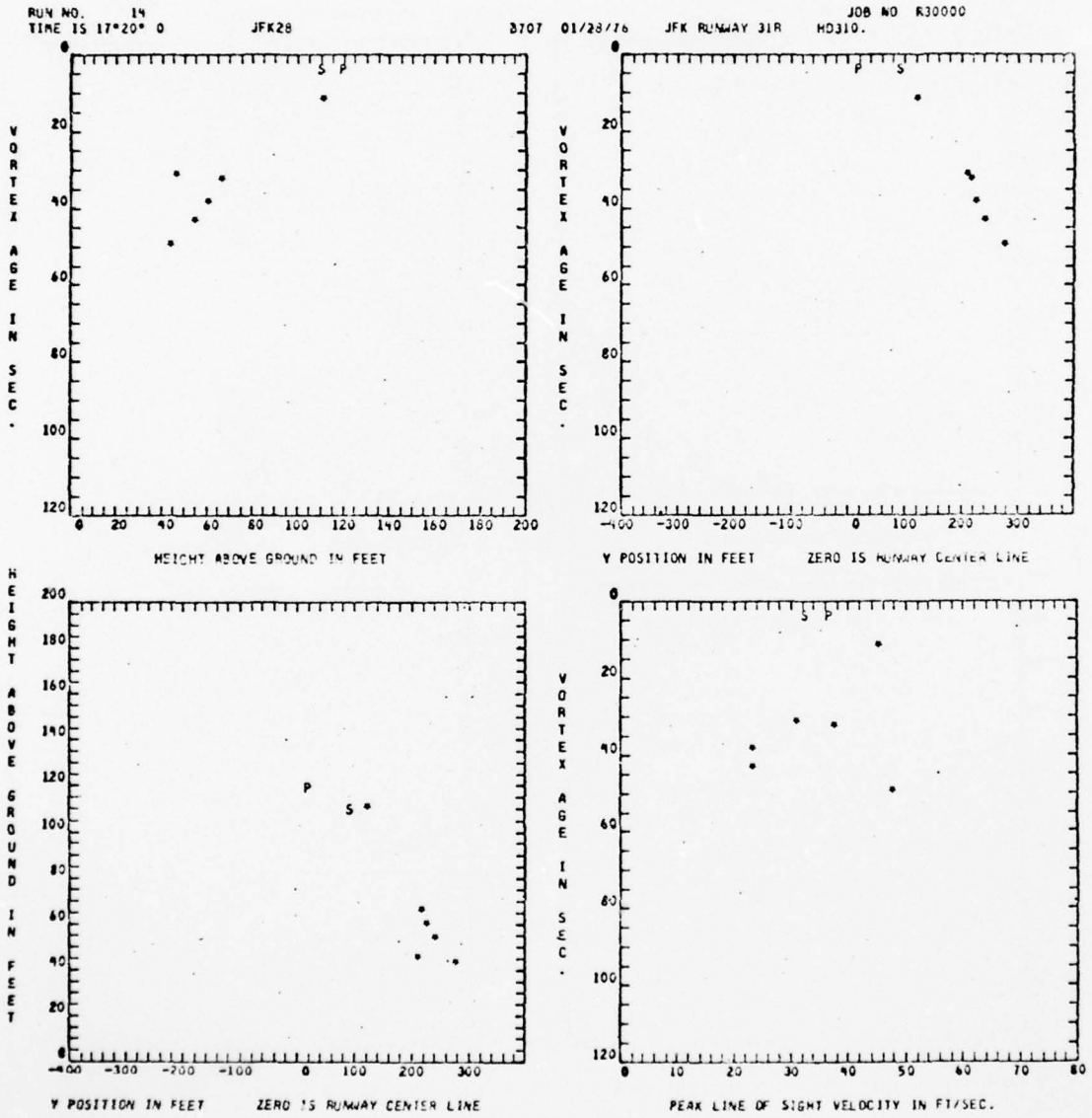

RUN NO. 8
TIME IS 17° 6° 0
JFK28
B747 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

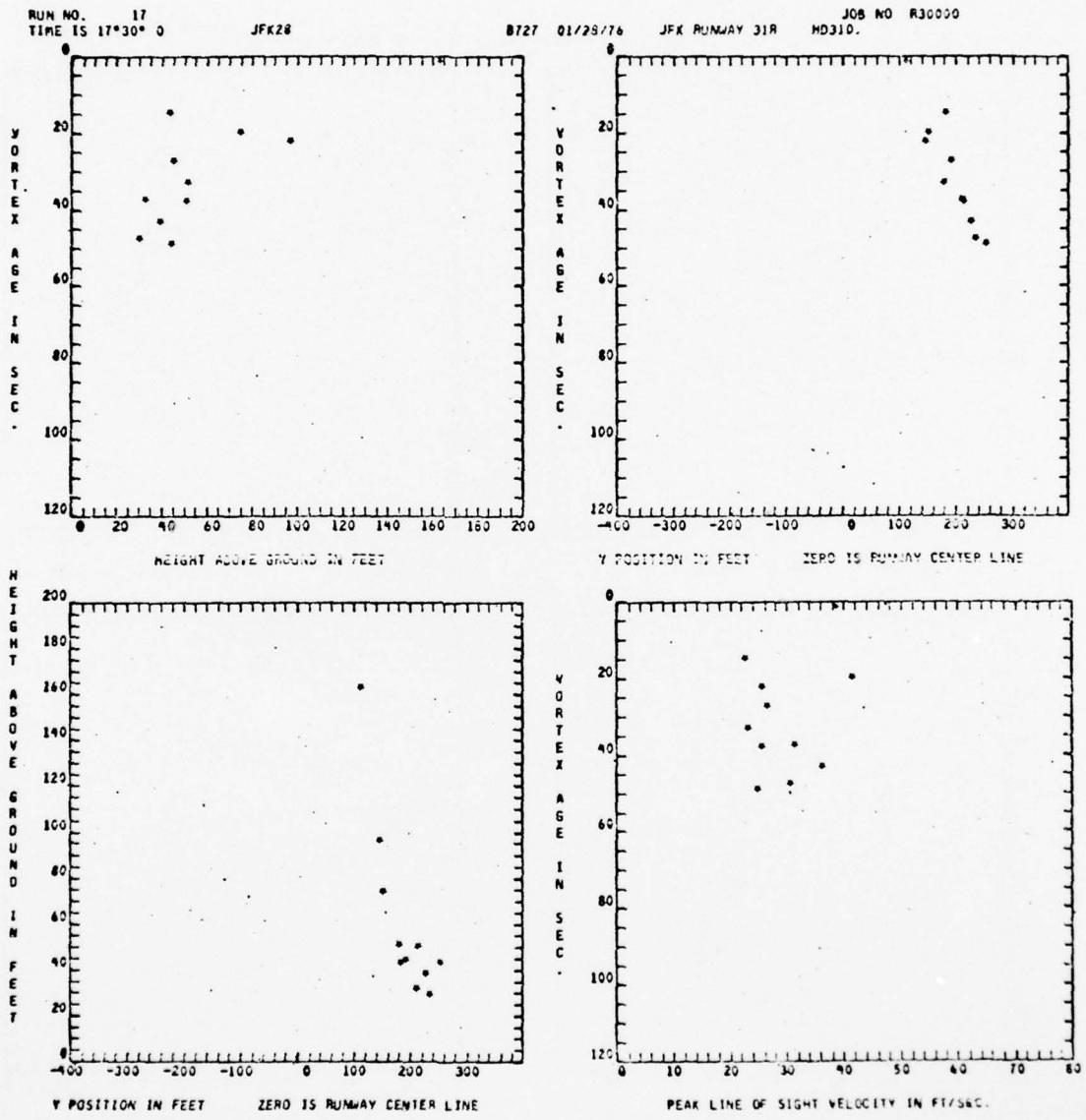

RUN NO. 9
TIME IS 17° 9° 0
JFK28
B707 01/28/76 JFK RUNWAY 31R HD310.
JOB NO RJ0000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE

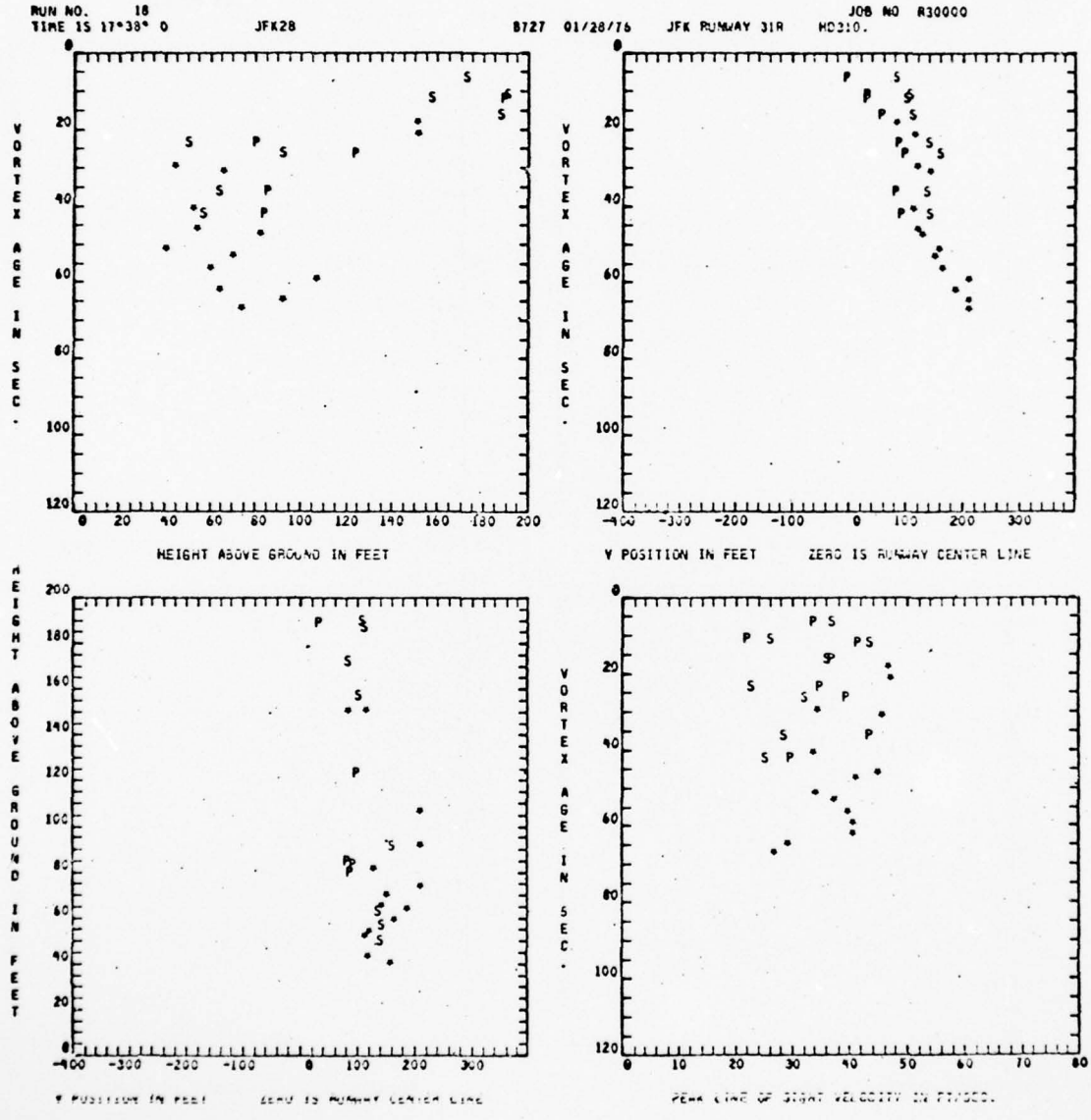

RUN NO. 11
TIME IS 17*12* 0
JFK28
B747 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

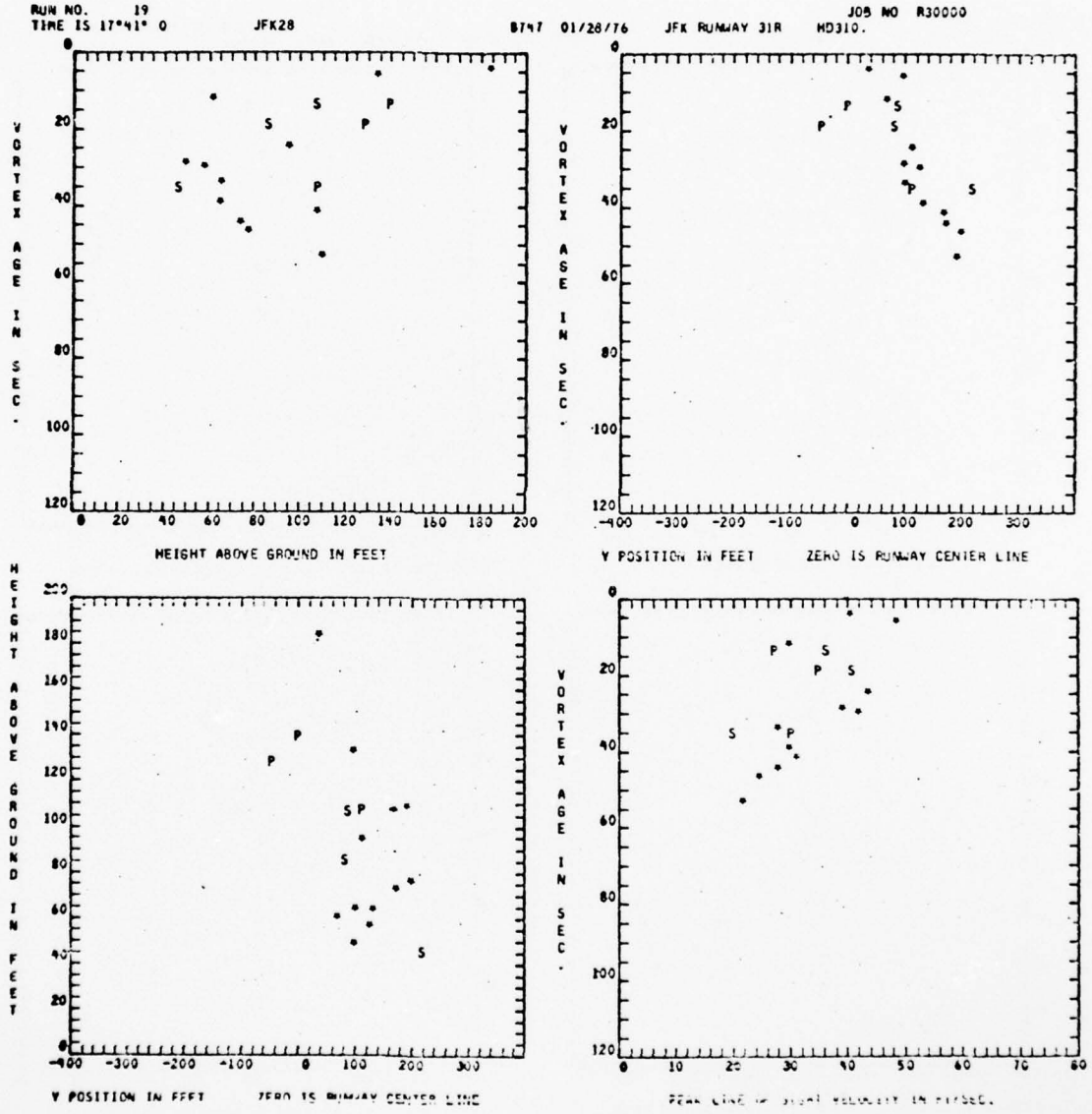

RUN NO. 12
TIME IS 17°14° 0
JFK28
L1011 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

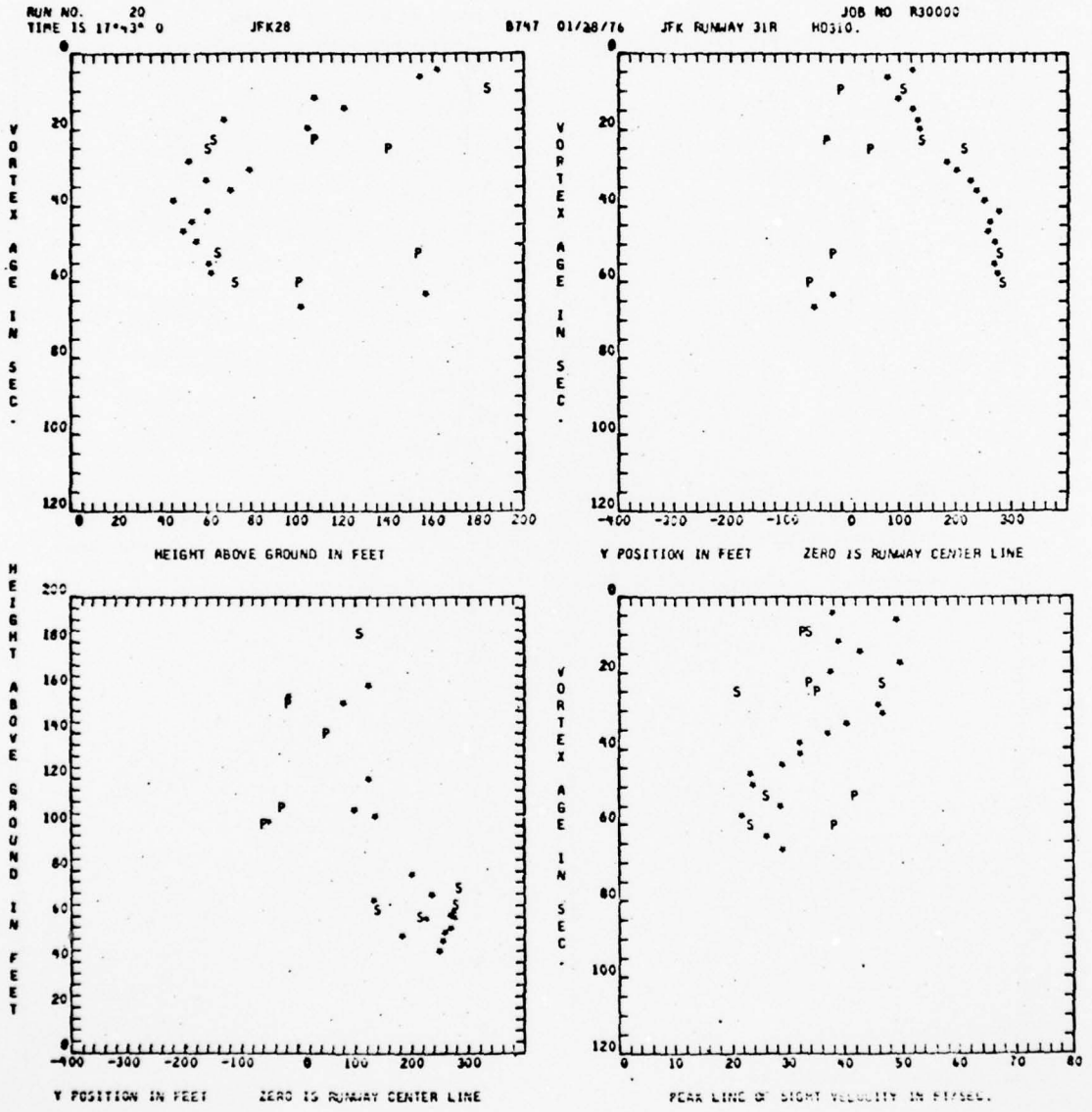

RUN NO. 13
TIME IS 17*17* 0
JFK28
DC8
01/28/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

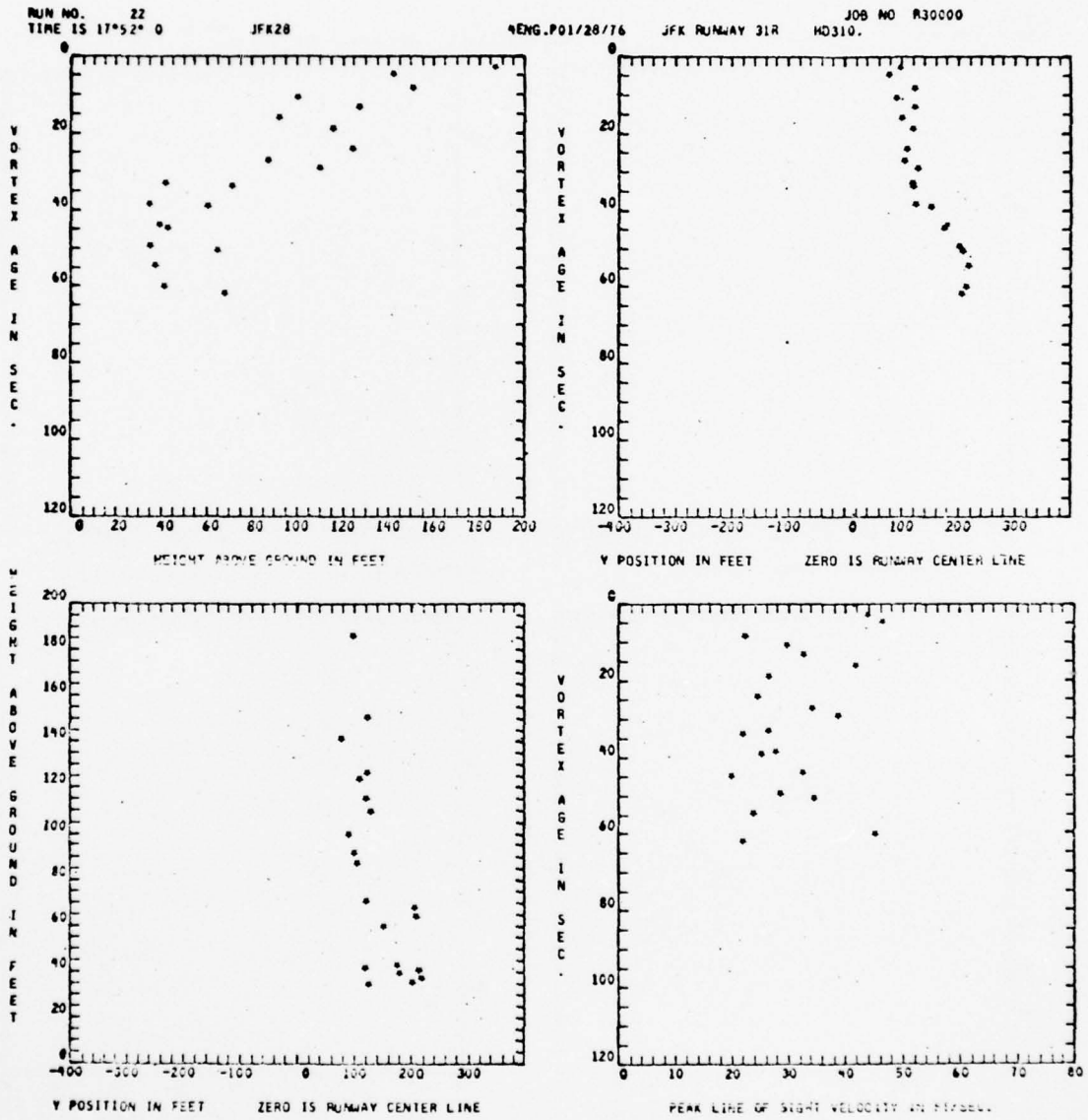

RUN NO. 14
TIME IS 17°20° 0
JFK28
8707 01/28/76
JFK RUNWAY 31R HD310.
JOB NO RJ0000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

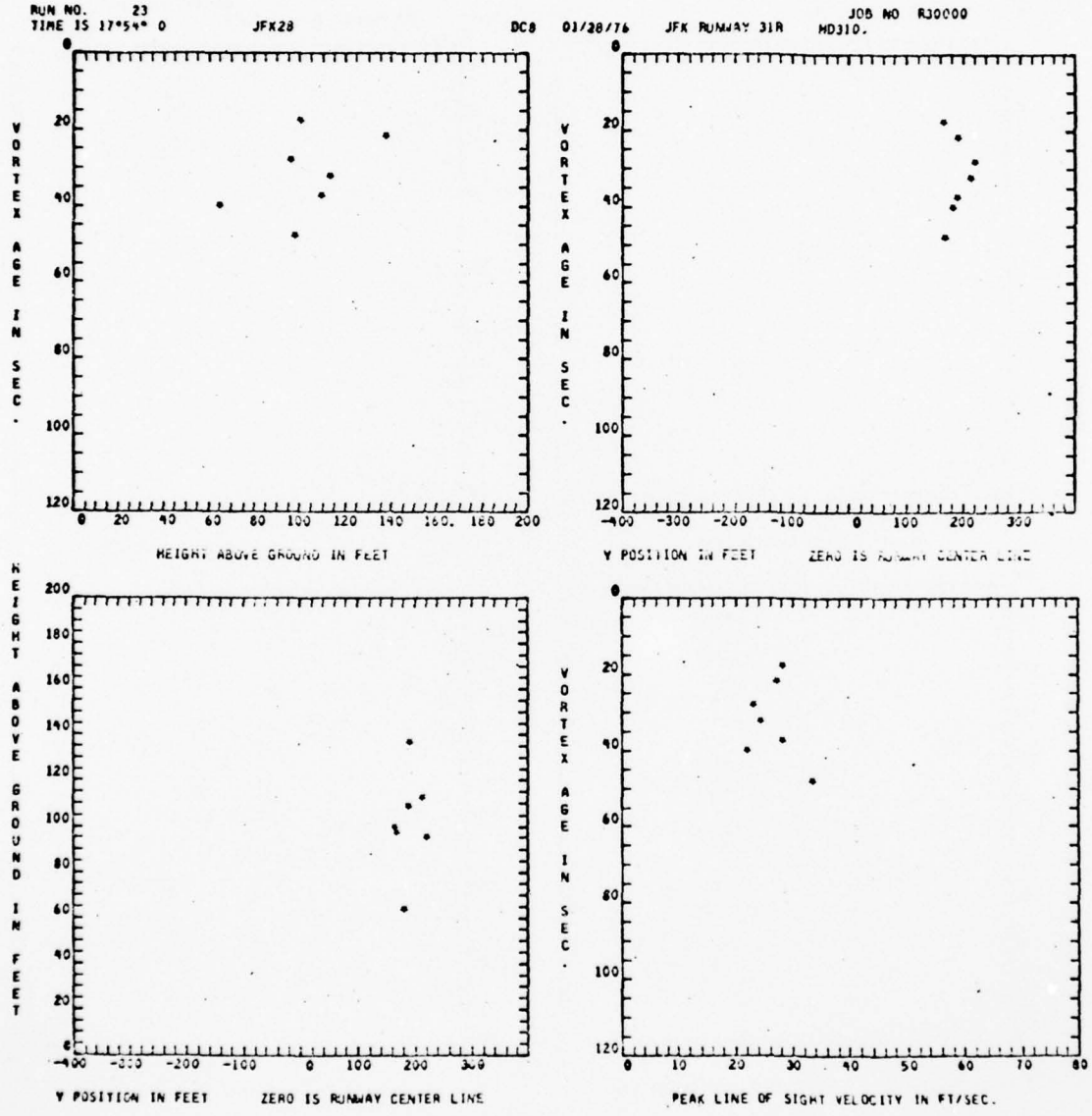

RUN NO. 17
TIME IS 17°30° 0
JFK28
B727 01/29/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

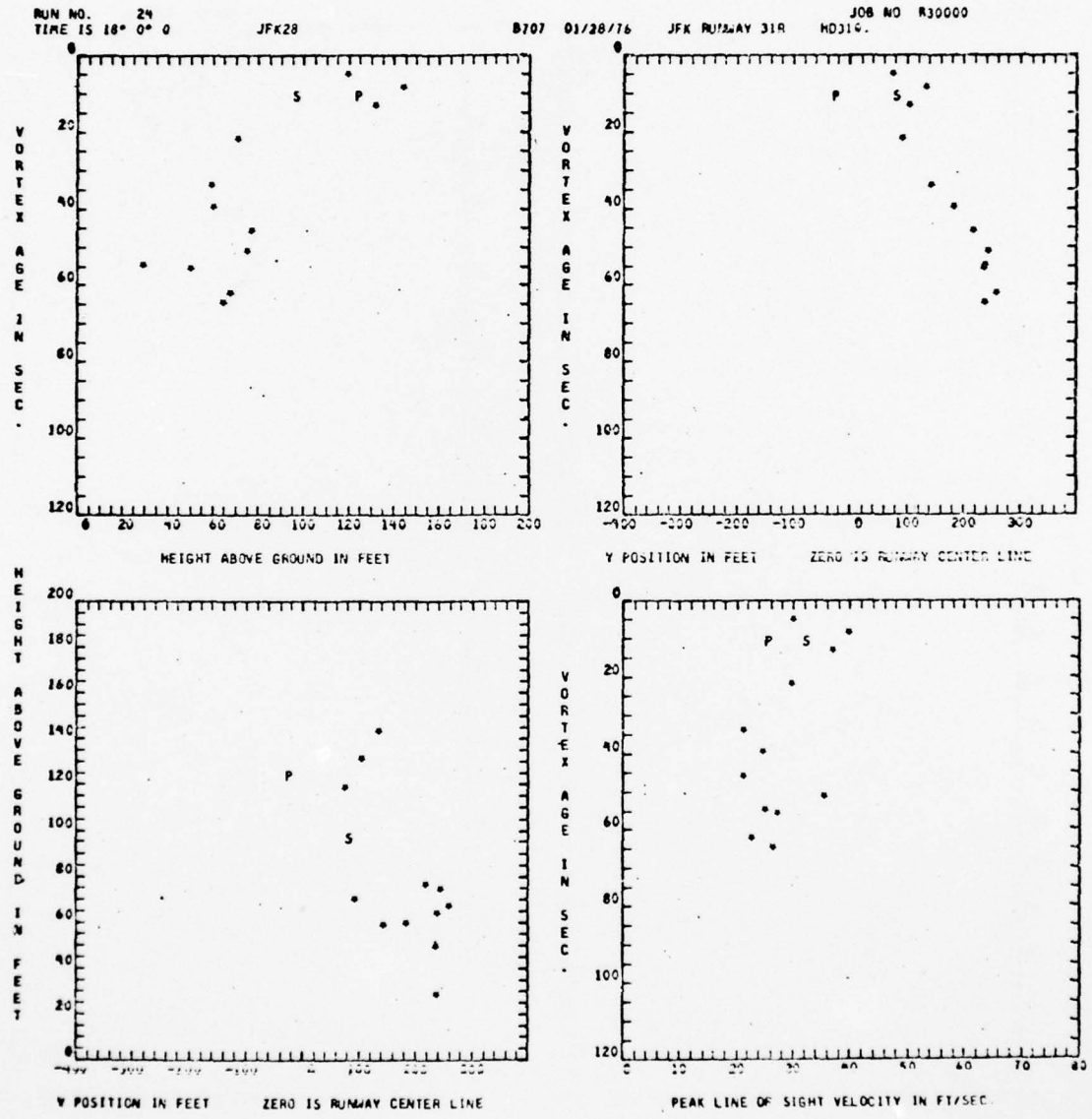

RUN NO. 18
TIME IS 17°38° 0
JFK28
B727 01/28/76 JFK RUNWAY 31R HDG10.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

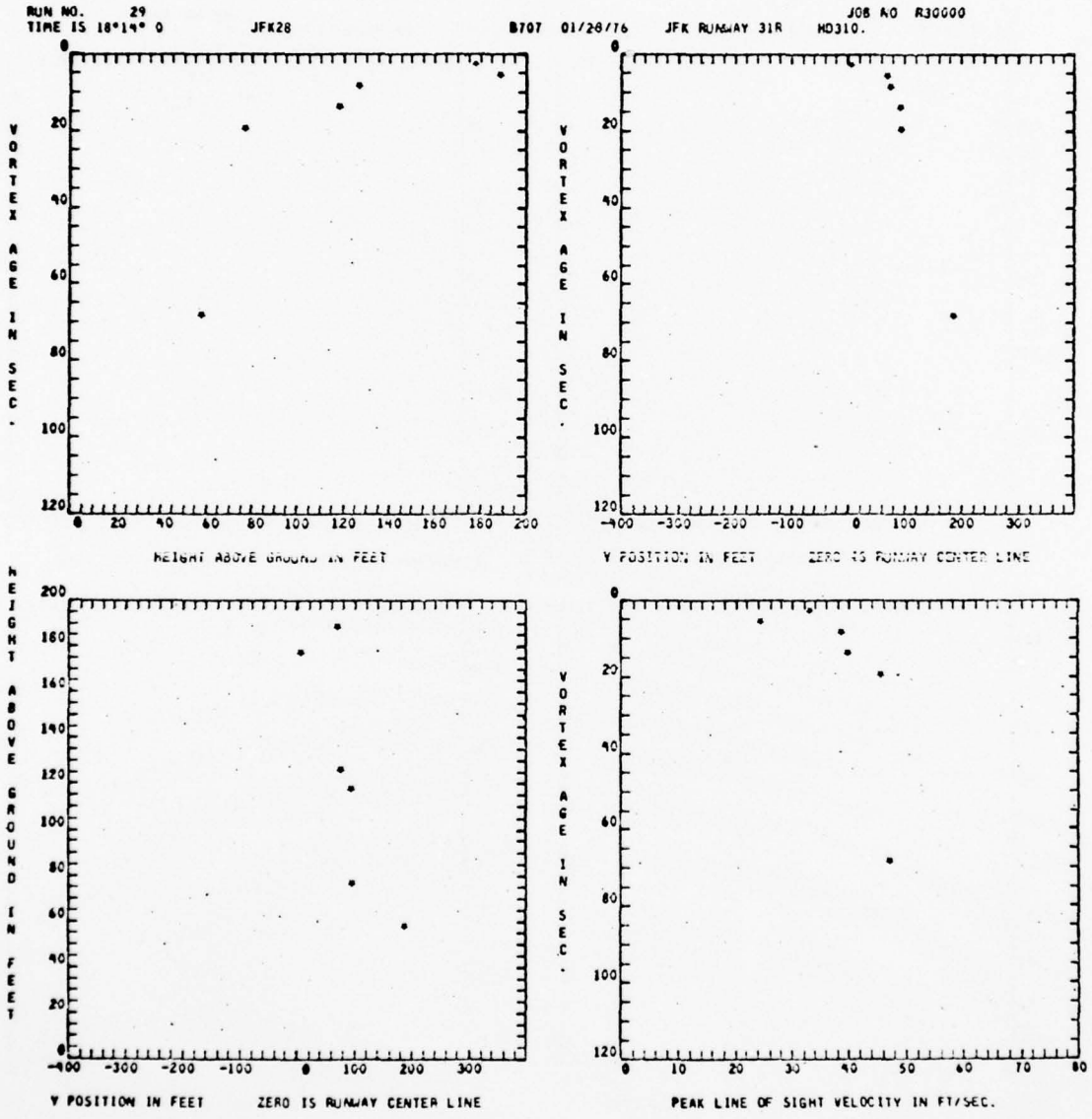

RUN NO. 19
TIME IS 17°41° 0
JFK28
B747 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE

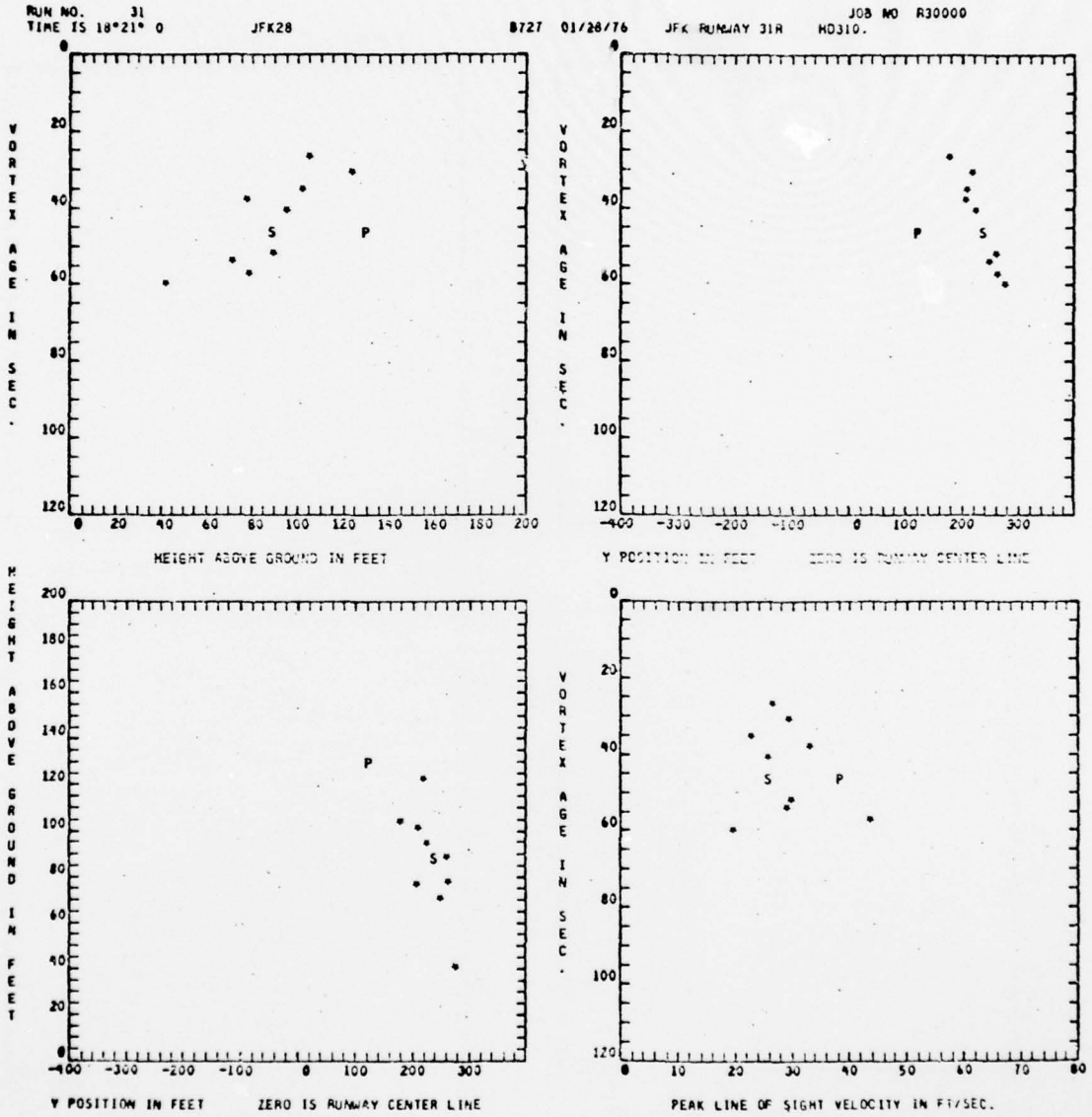

RUN NO. 20
TIME IS 17°43' 0
JFK28
B747 01/28/76 JFK RUNWAY 31R H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

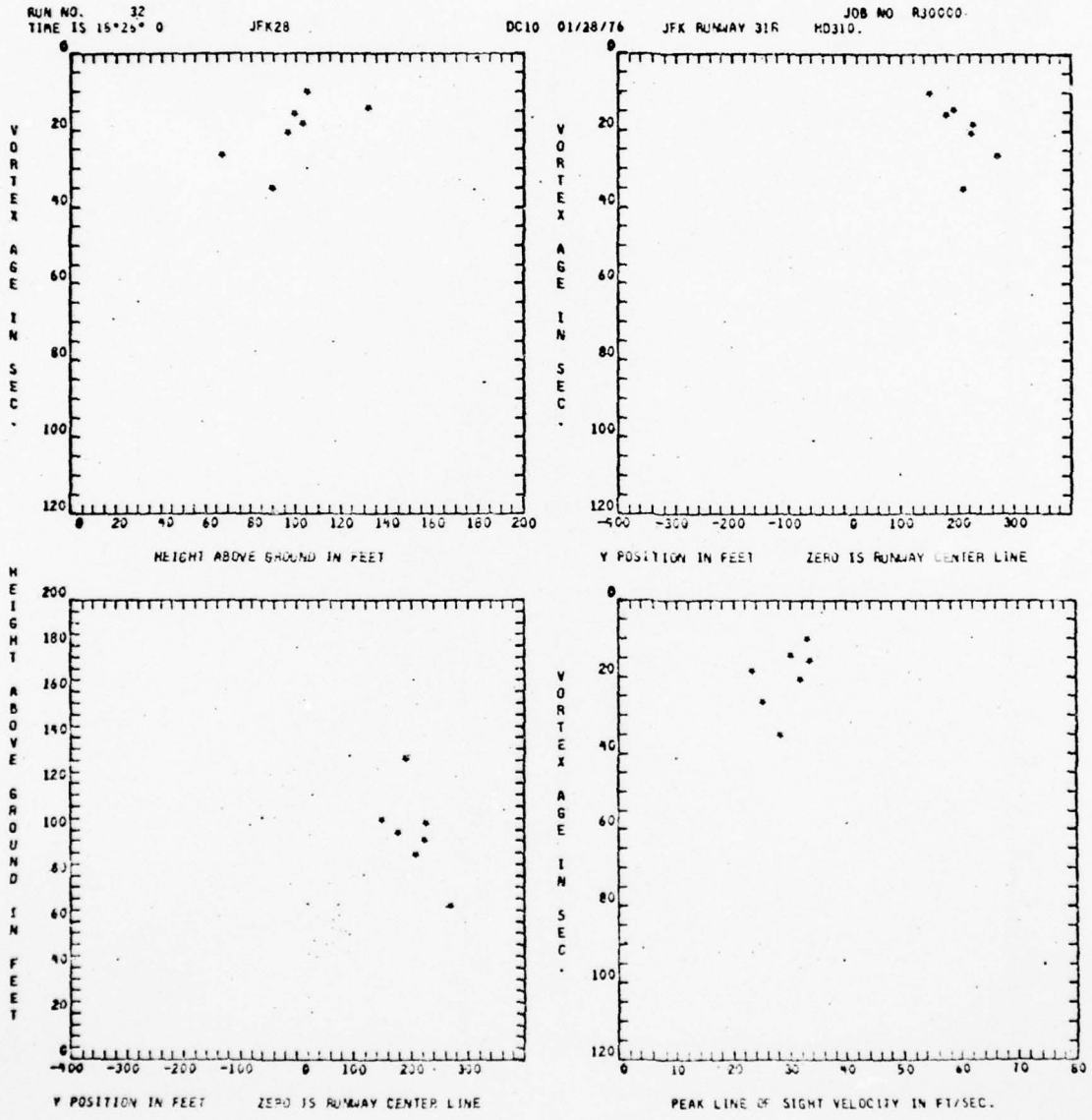

RUN NO. 22
TIME IS 17*52* 0
JFK28
4ENG.P01/28/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC

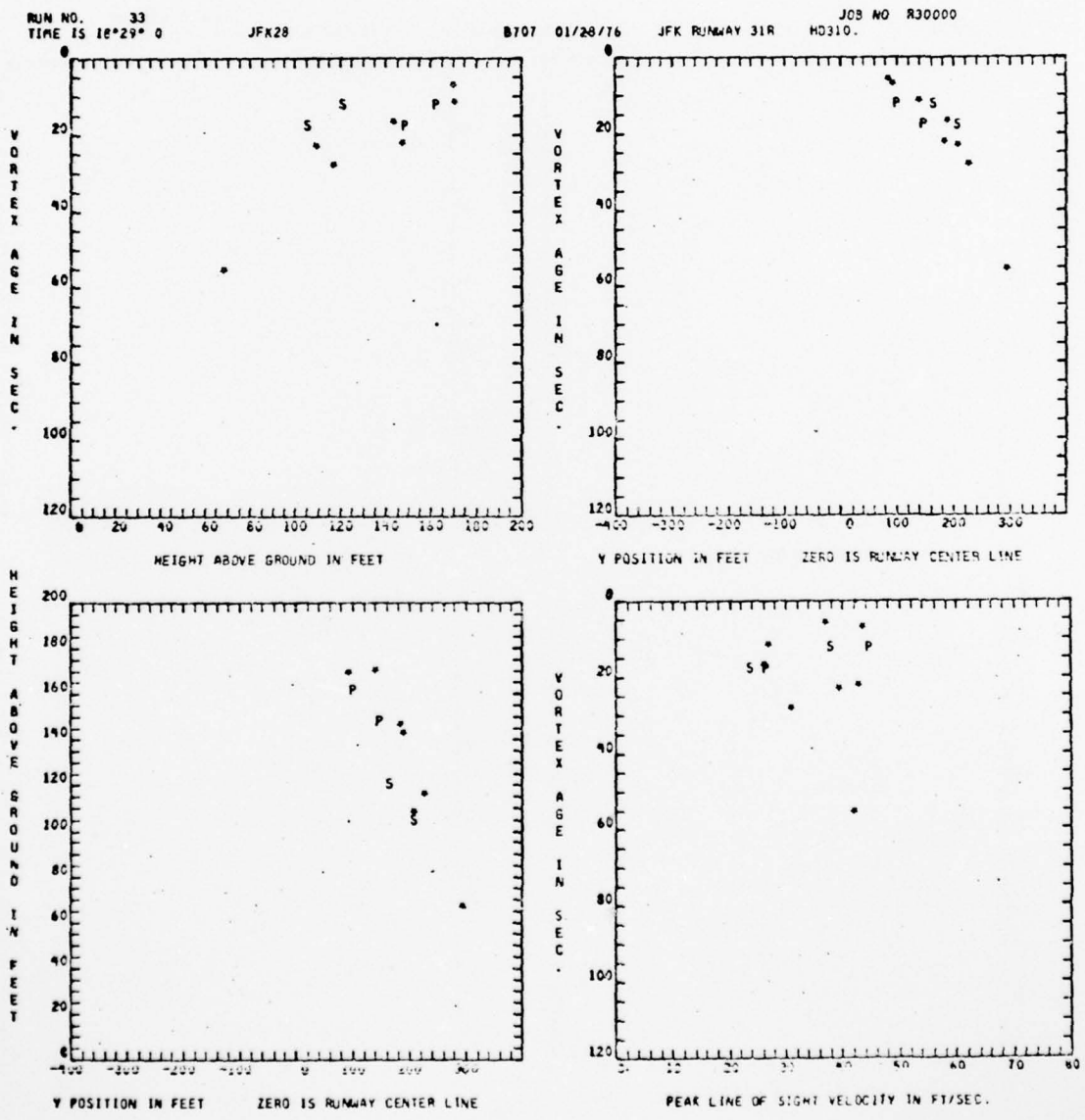

RUN NO. 23
TIME IS 17°54° 0
JFK28
DC8
01/28/76
JFK RUNWAY 31R
JOB NO R30000
HD310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

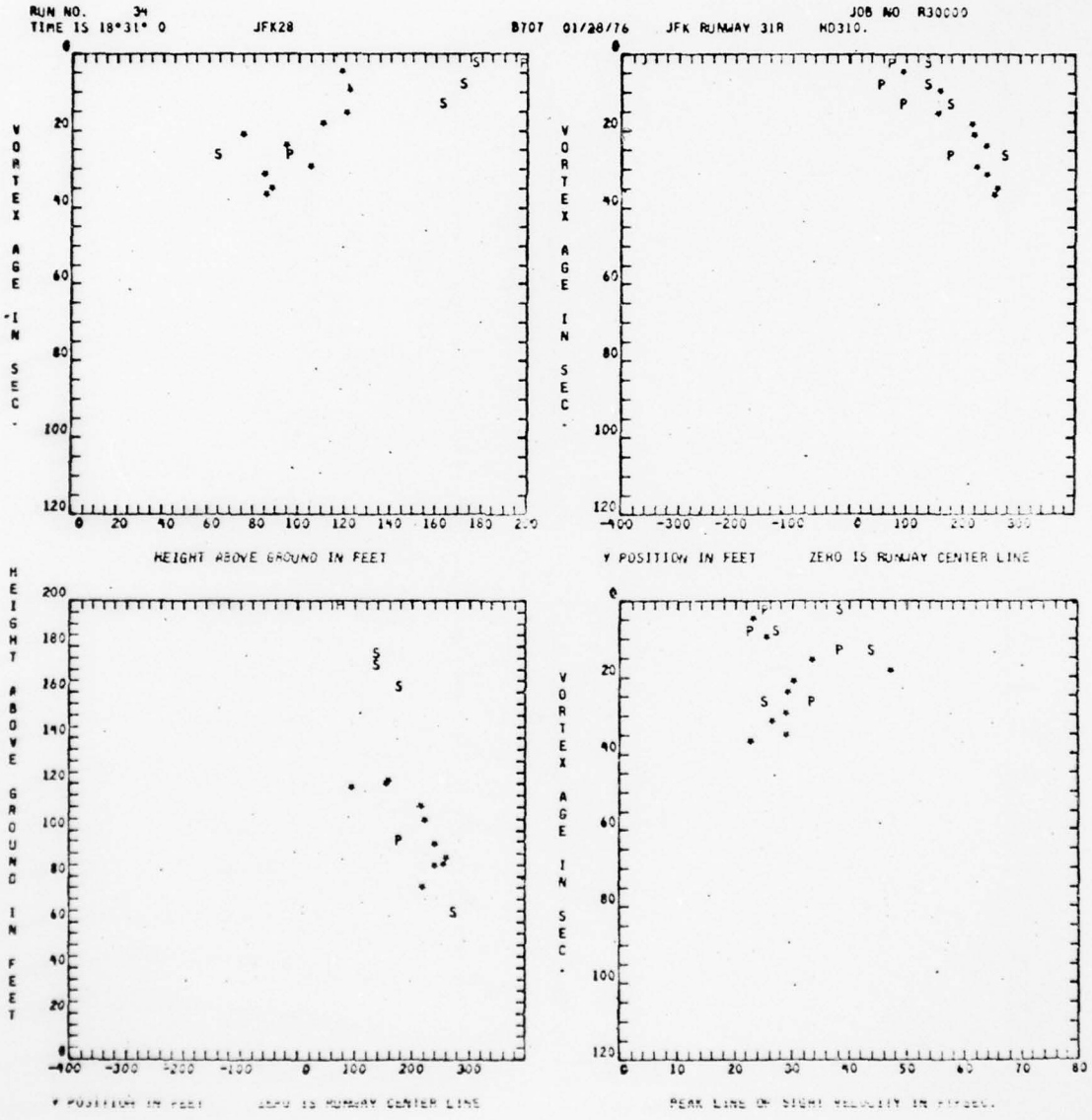

RUN NO. 24
TIME IS 18° 0° 0
JFK28
B707 01/28/76 JFK RUNWAY 31R HDG19.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC


RUN NO. 29
TIME IS 18*14* 0
JFK28
B707 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 31
TIME IS 18°21° 0
JFK28
B727 01/28/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.
P
S


RUN NO. 32
TIME IS 15°25° 0
JFK28
DC10 01/28/76
JFK RUNWAY 31R
JOB NO RJ0000
HD310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

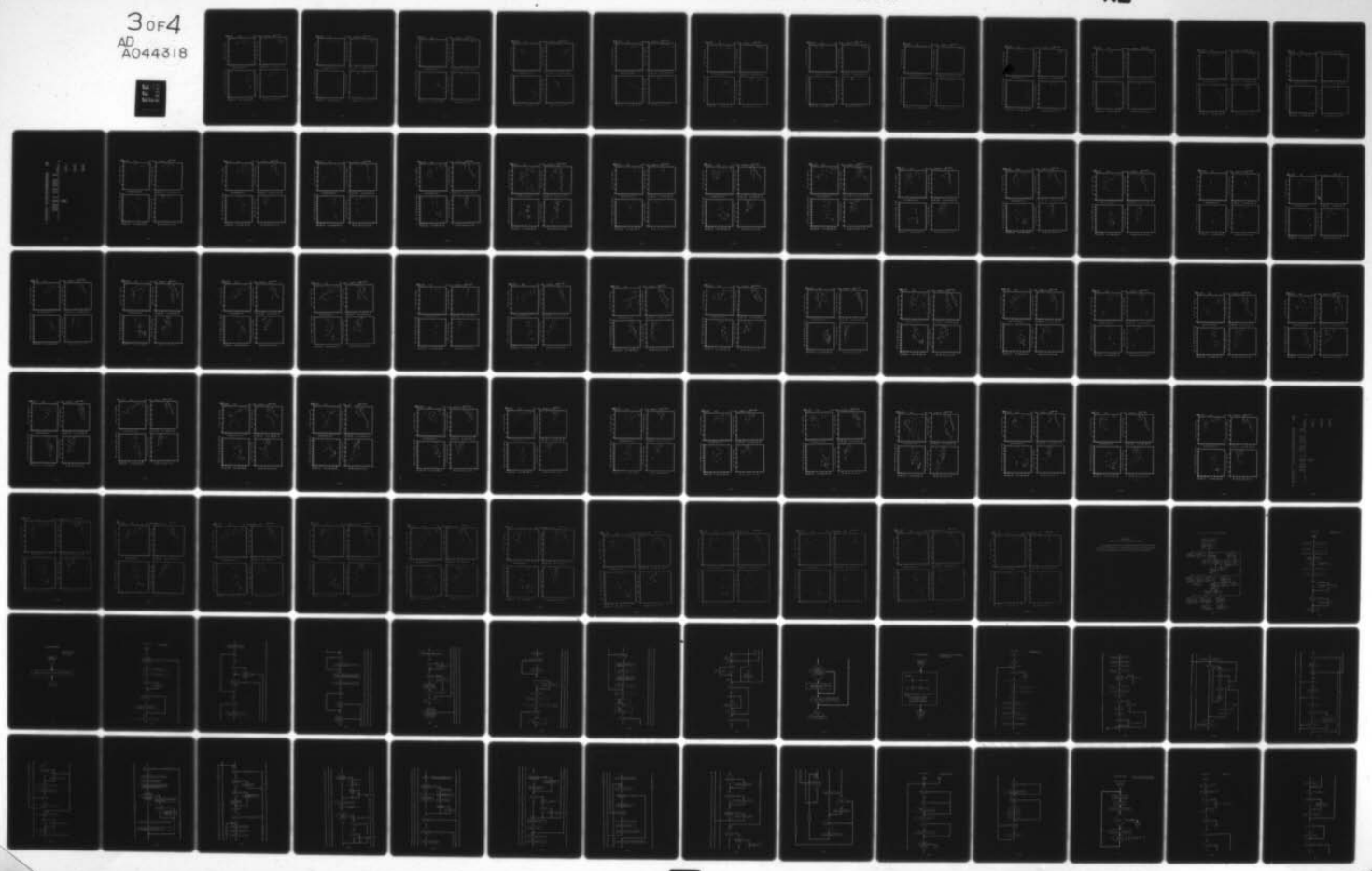

RUN NO. 33
TIME IS 18*29* 0
JFK28
B707 01/28/76 JFK RUNWAY 31R H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

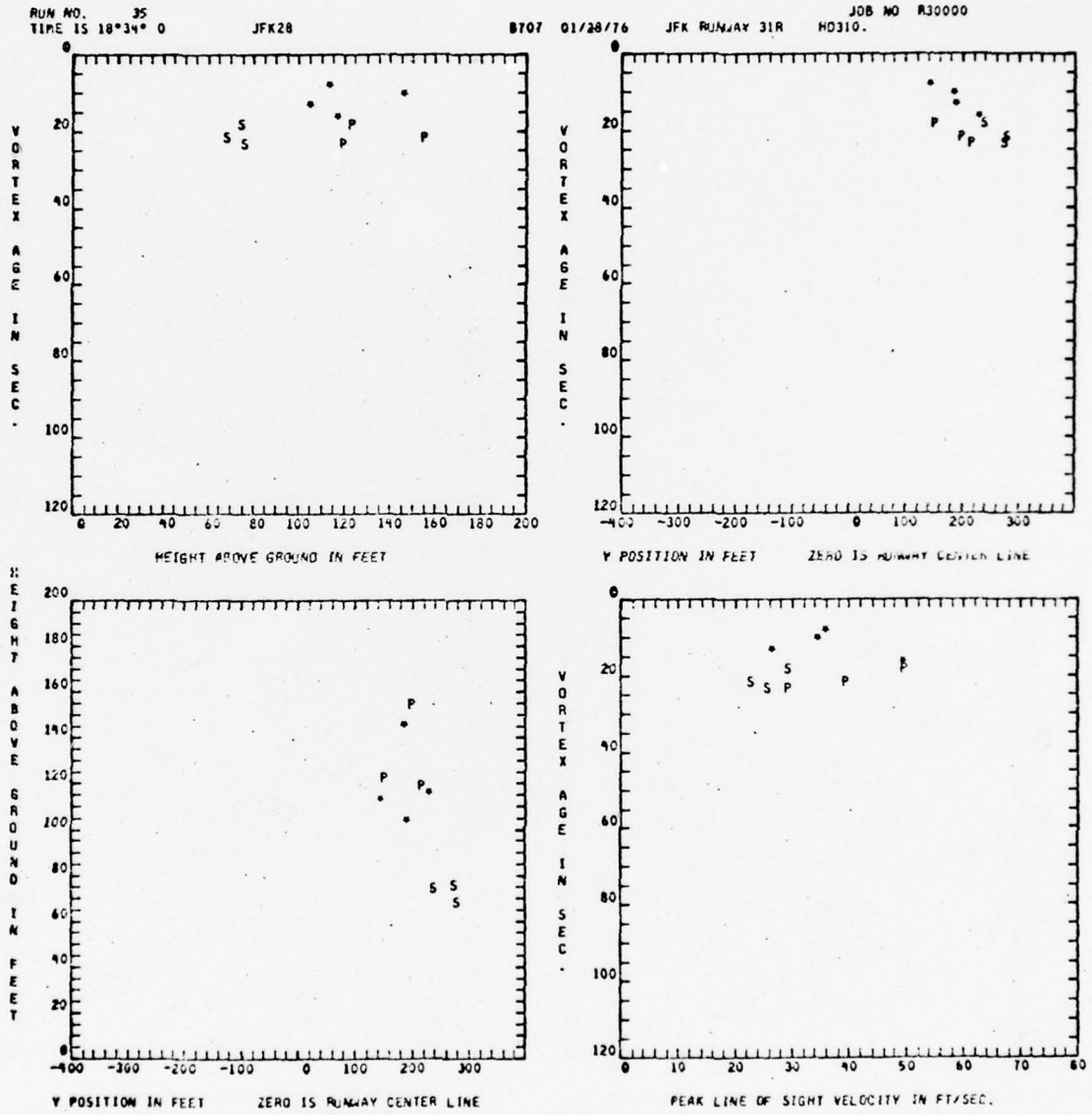

RUN NO. 34
TIME IS 18°31° 0
JFK28
B707 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
VORTEX AGE IN SEC.
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

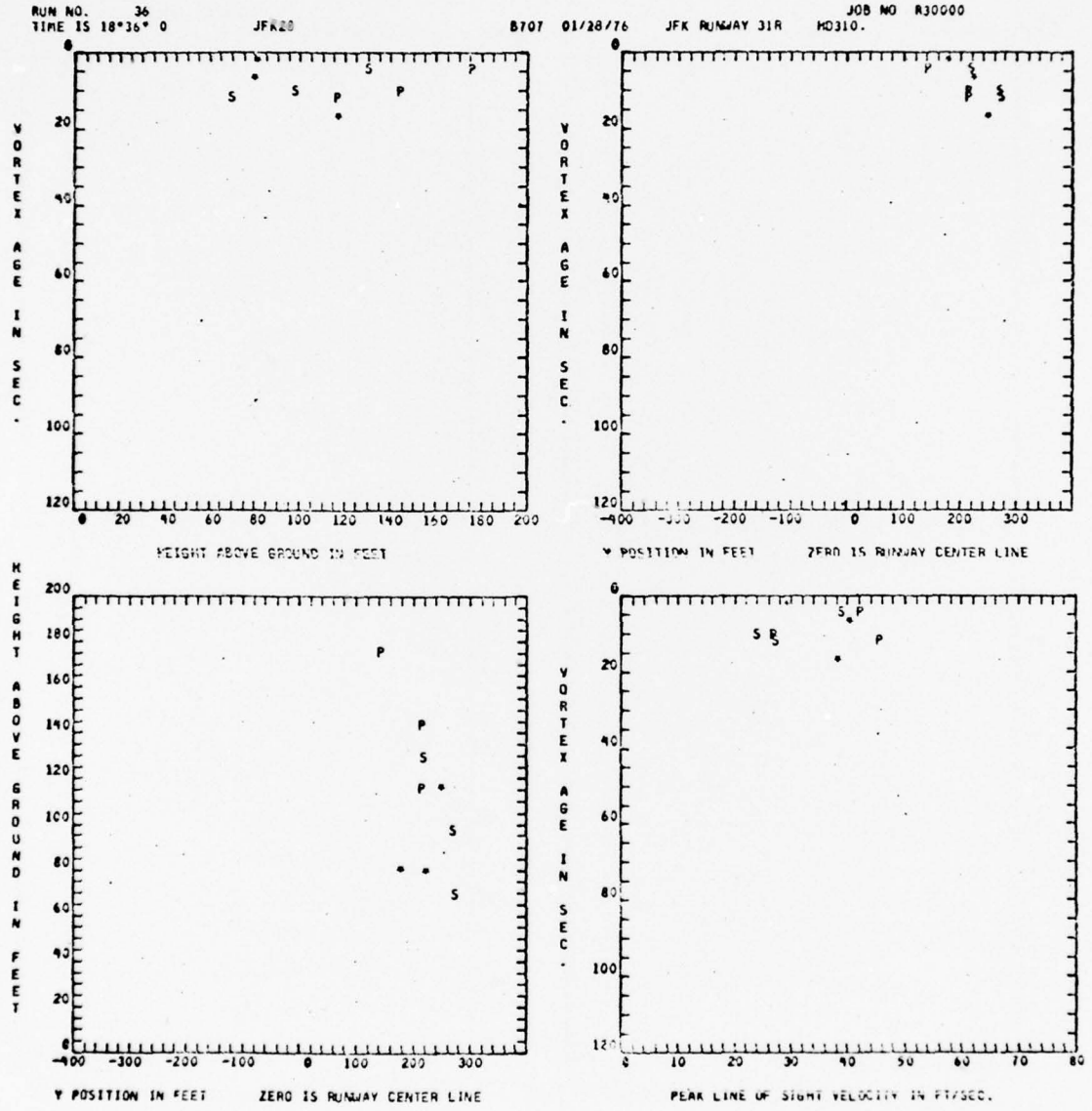
AD-A044 318 LOCKHEED MISSILES AND SPACE CO INC HUNTSVILLE ALA HU--ETC F/G 14/2
MOBILE LASER DOPPLER SYSTEM CHECKOUT AND CALIBRATION. VOLUME II--ETC(U).
JUN 77 M R BRASHEARS, T R LAWRENCE, A D ZALAY DOT-TSC-1098-2

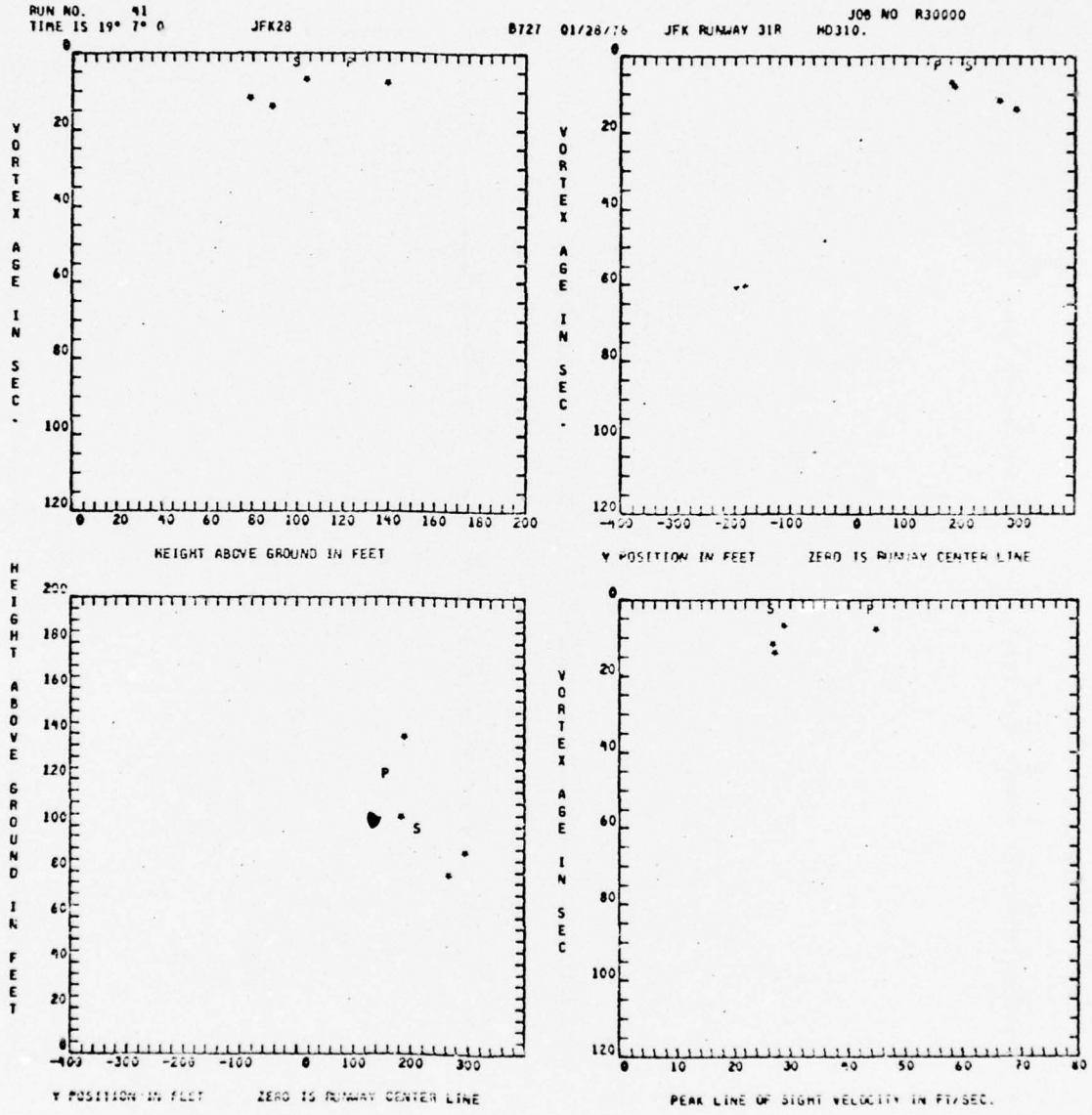
UNCLASSIFIED LMSC-HREC-TR-D497036-2 FAA-RD-77-48.2 NL

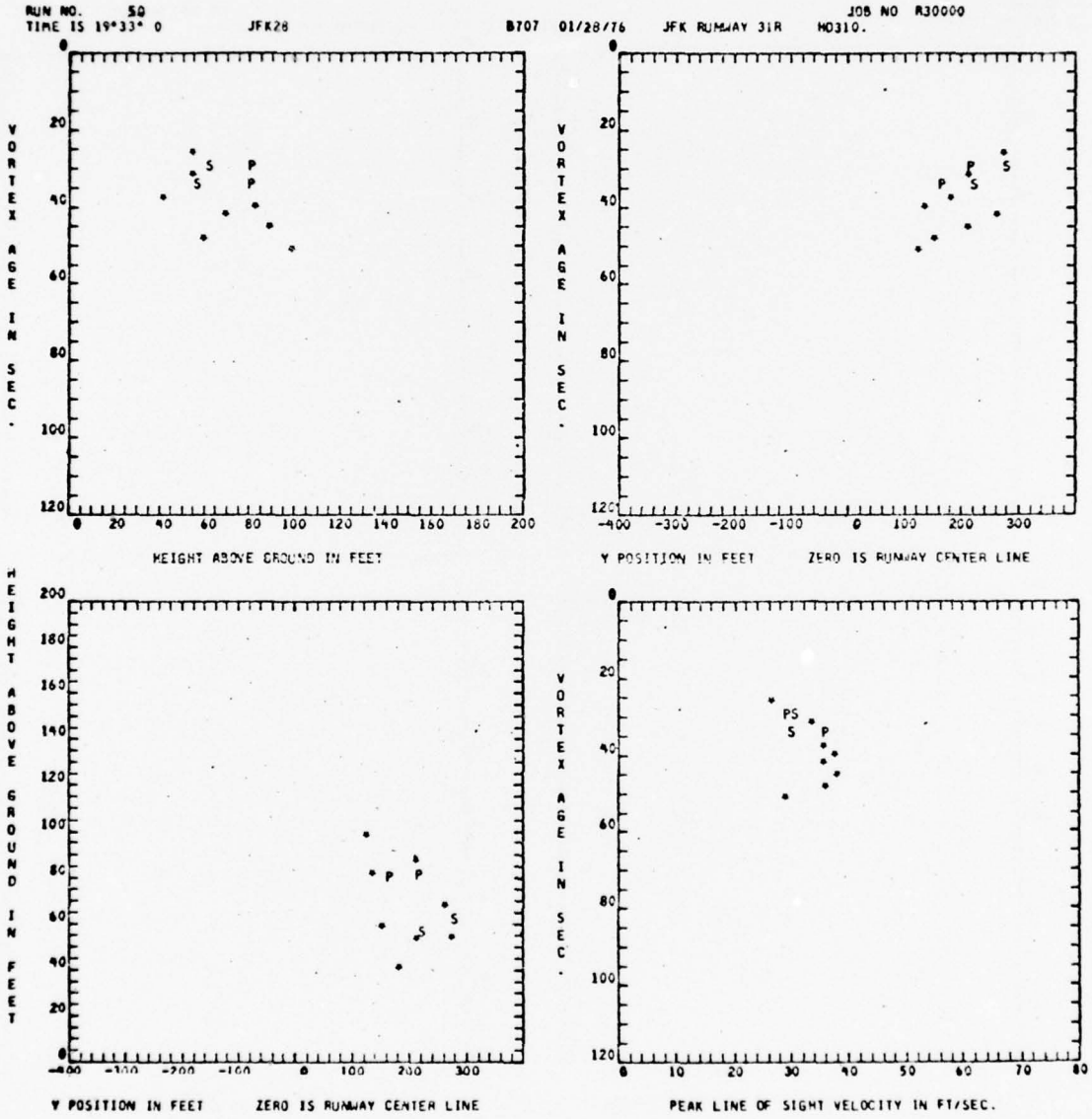
3 OF 4
AD
A044318

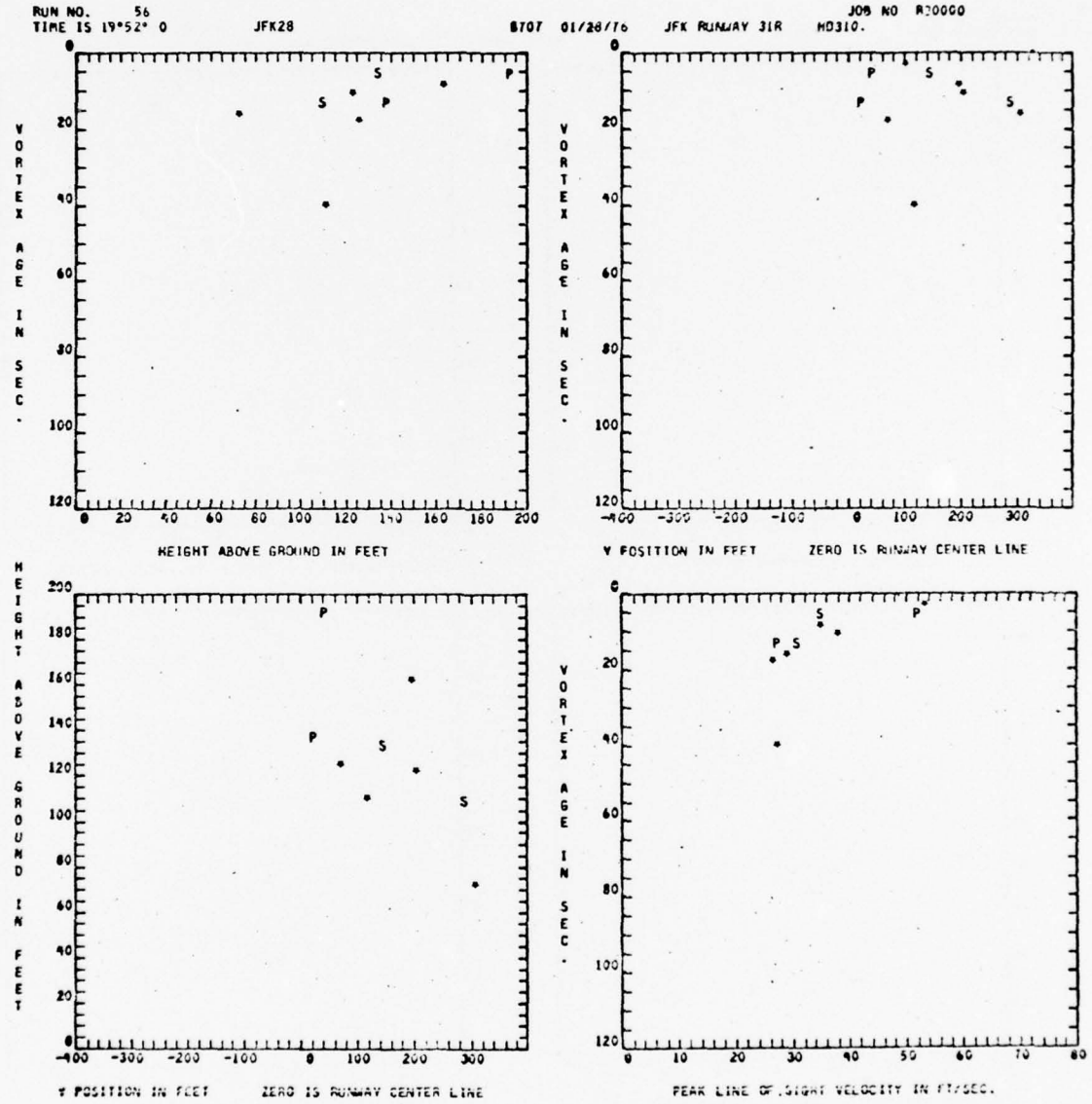


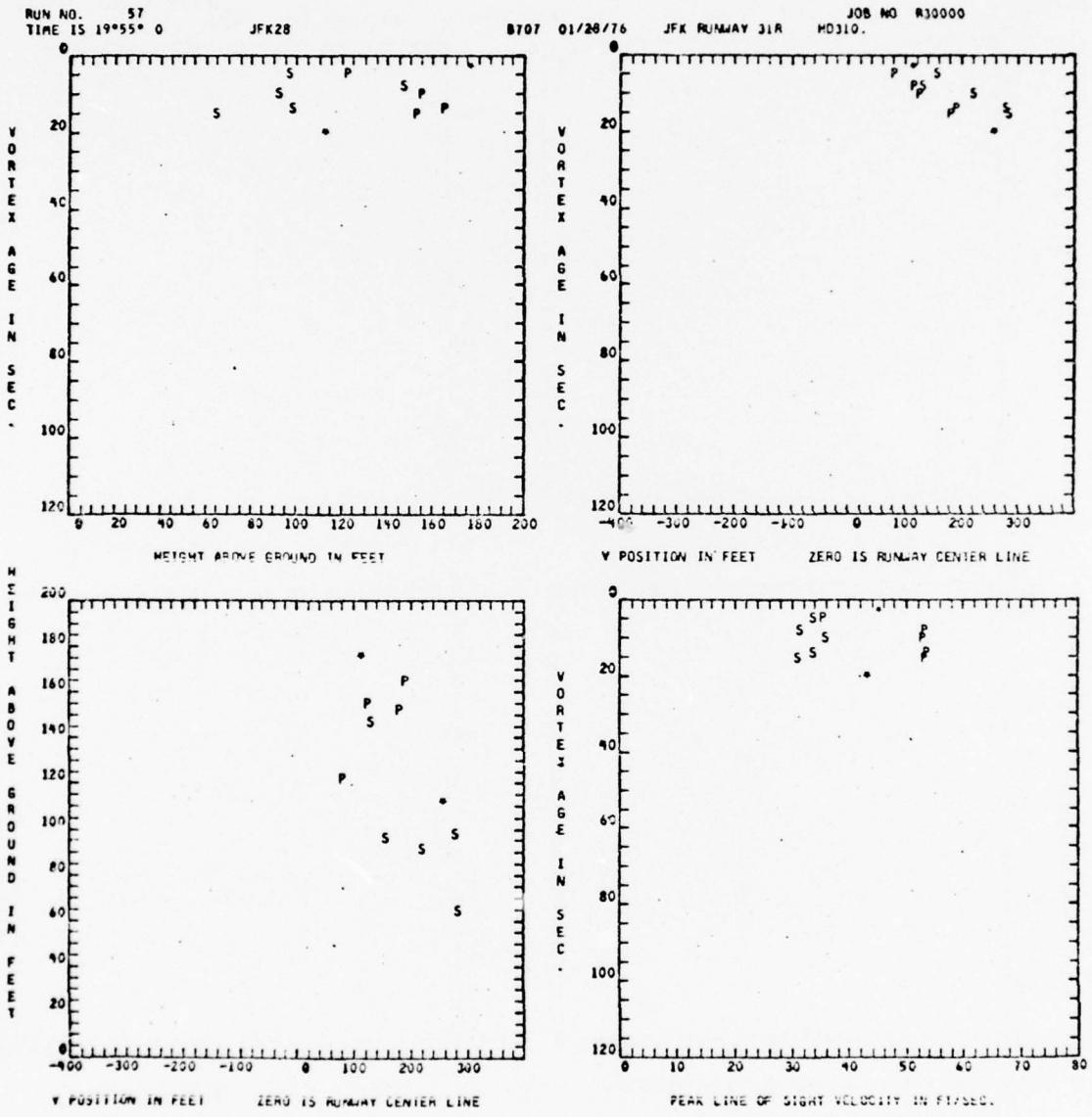

RUN NO. 35
TIME IS 18°34° 0
JFK28
B707 01/28/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

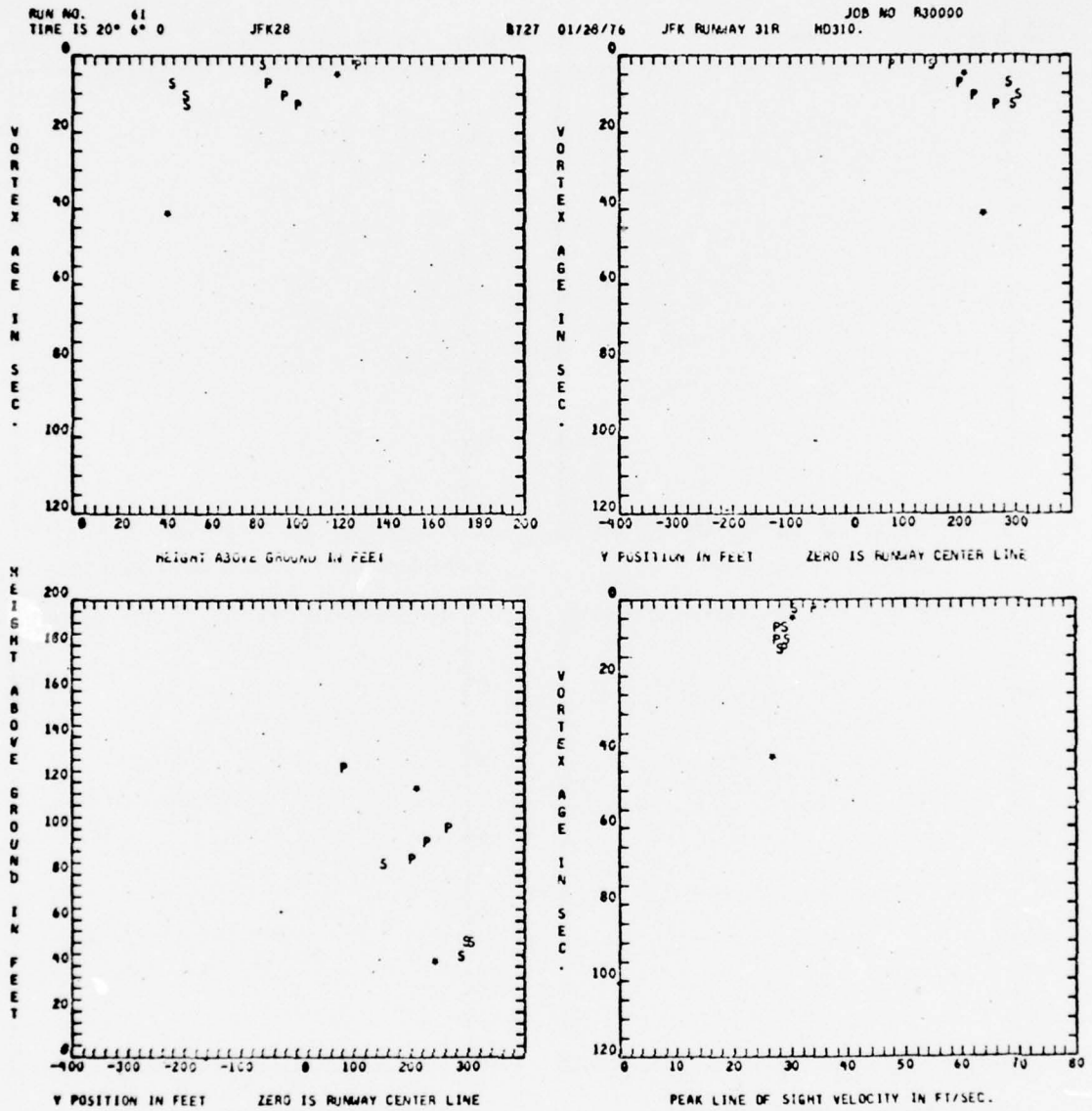

RUN NO. 36
TIME IS 18*36* 0
JFK20
B707 01/28/76 JFK RUNWAY 31R
JOB NO R30000
H0310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

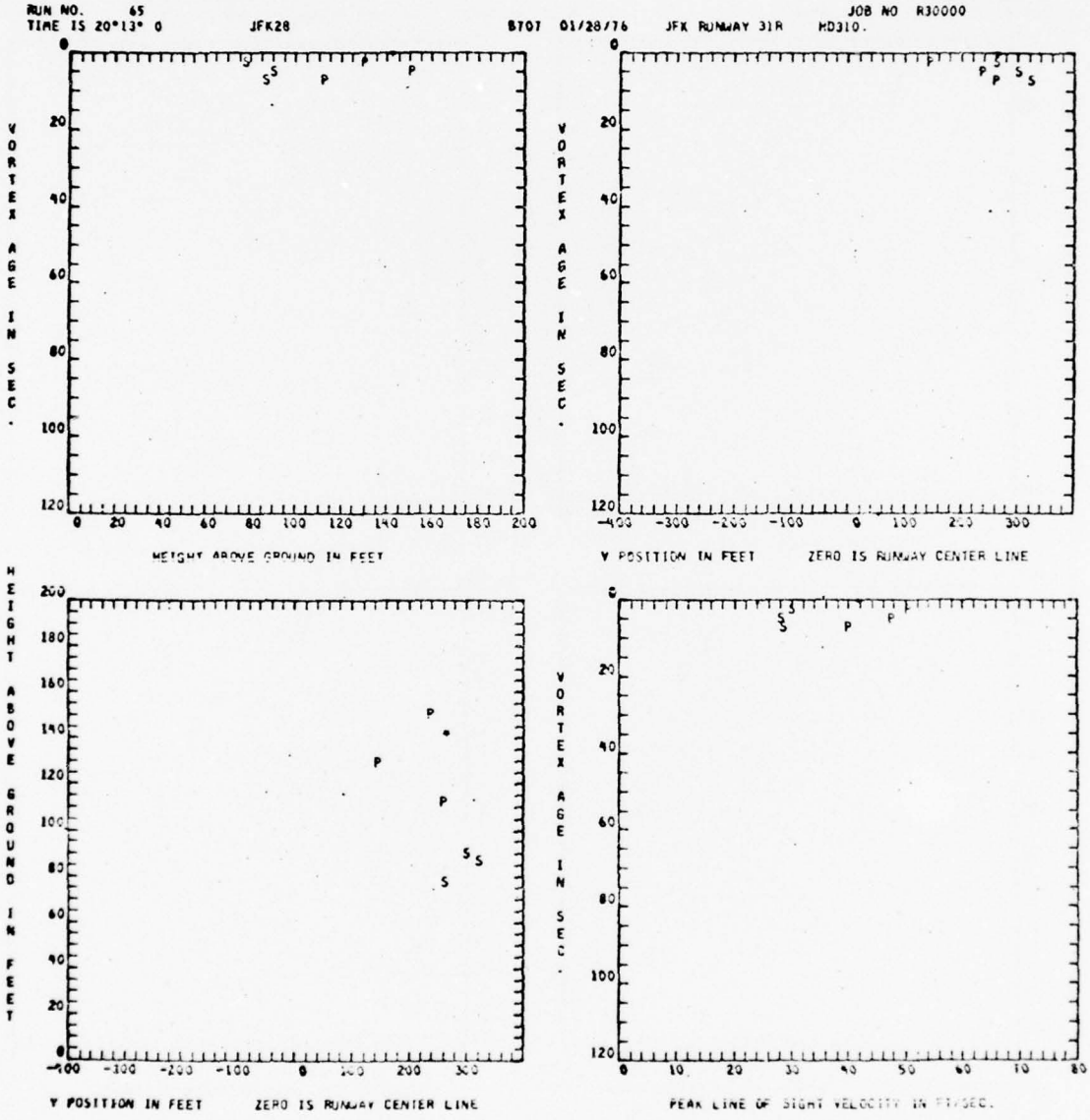

RUN NO. 91
TIME IS 19° 7° 0
JFK28
B727 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

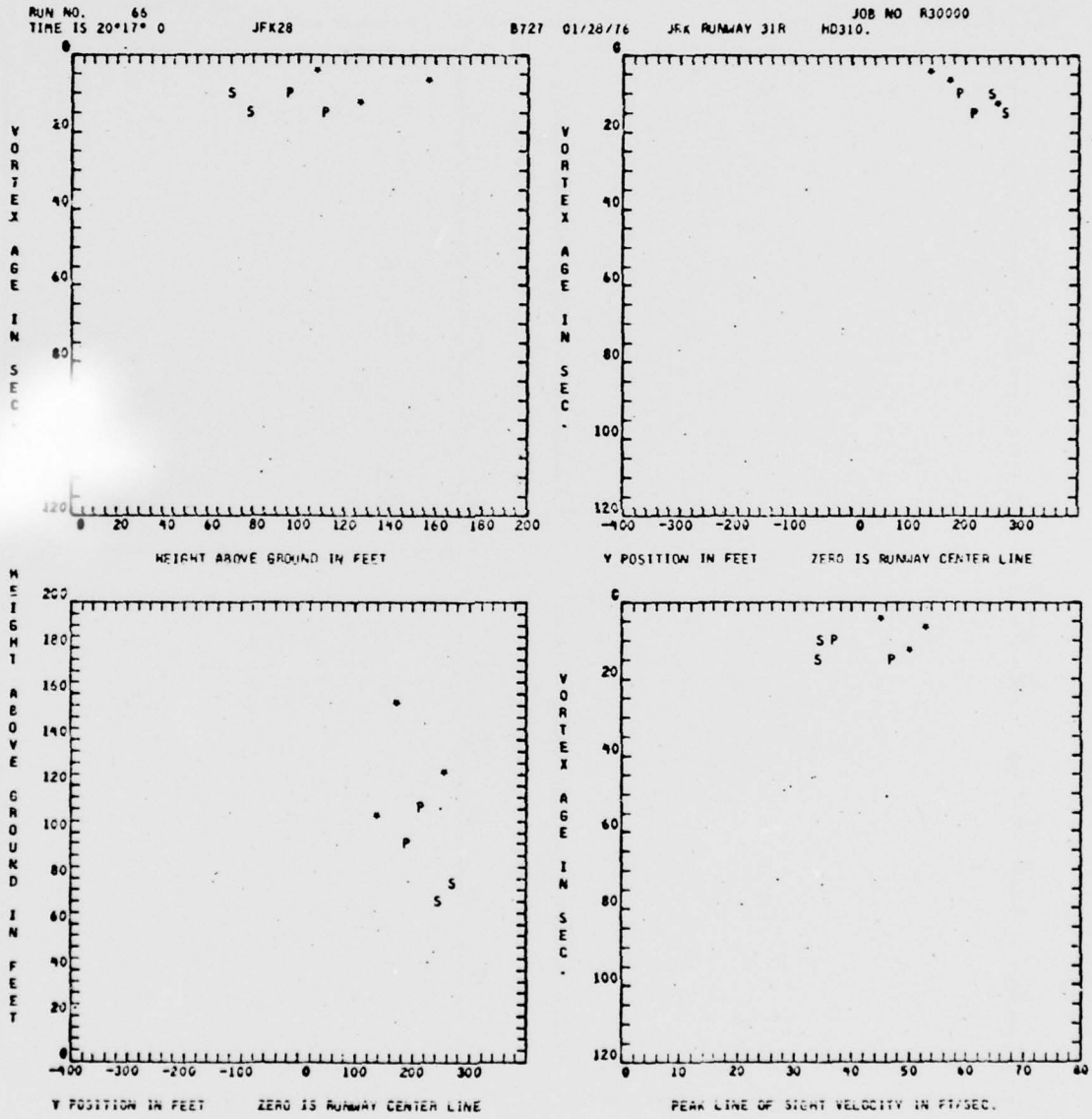

RUN NO. 50
TIME IS 19°33' 0
JFK28
B707 01/28/76 JFK RUNWAY 31R
JOB NO R30000
H0310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

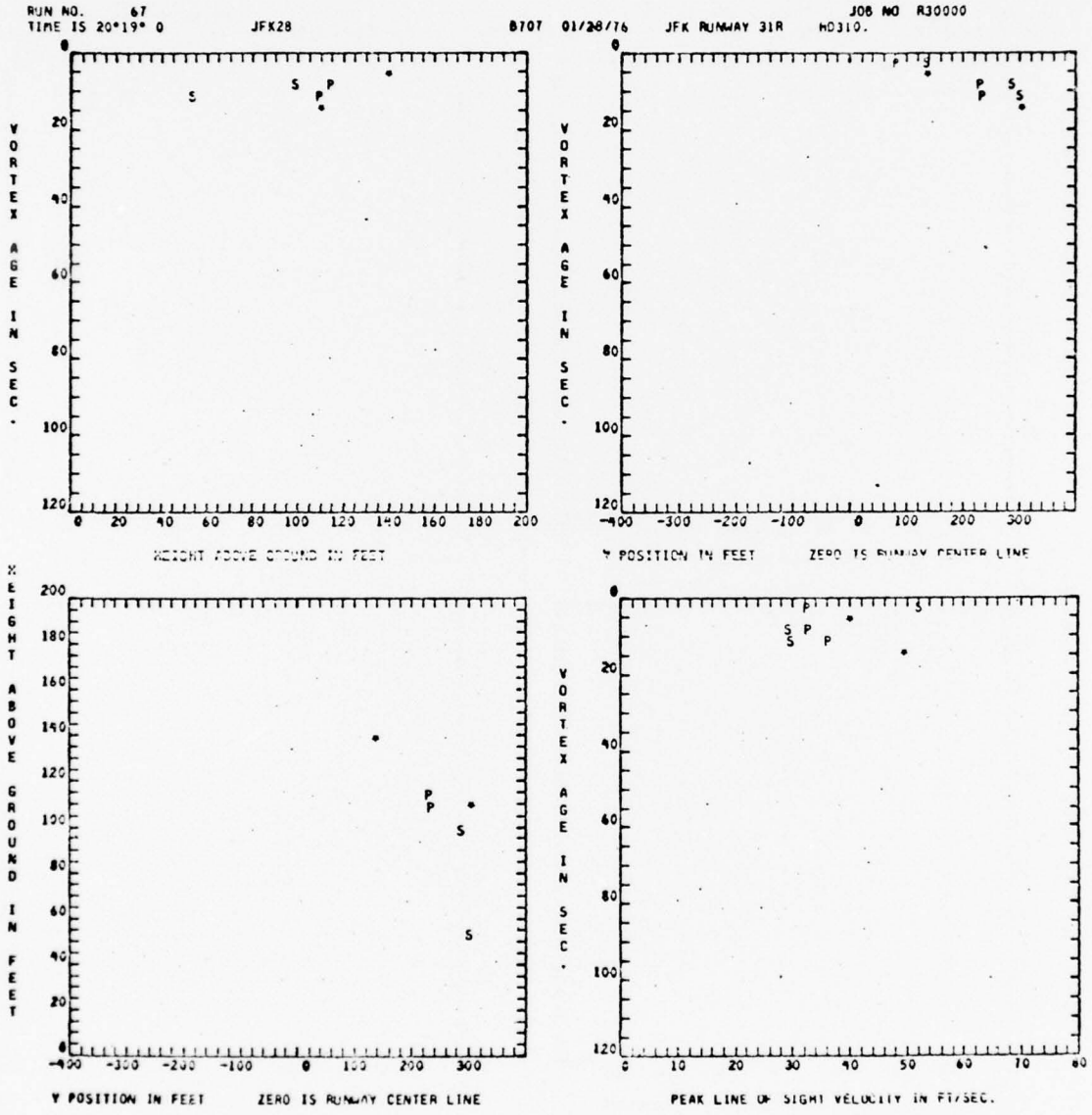

RUN NO. 56
TIME IS 19°52' 0
JFK28
8707 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R20060
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

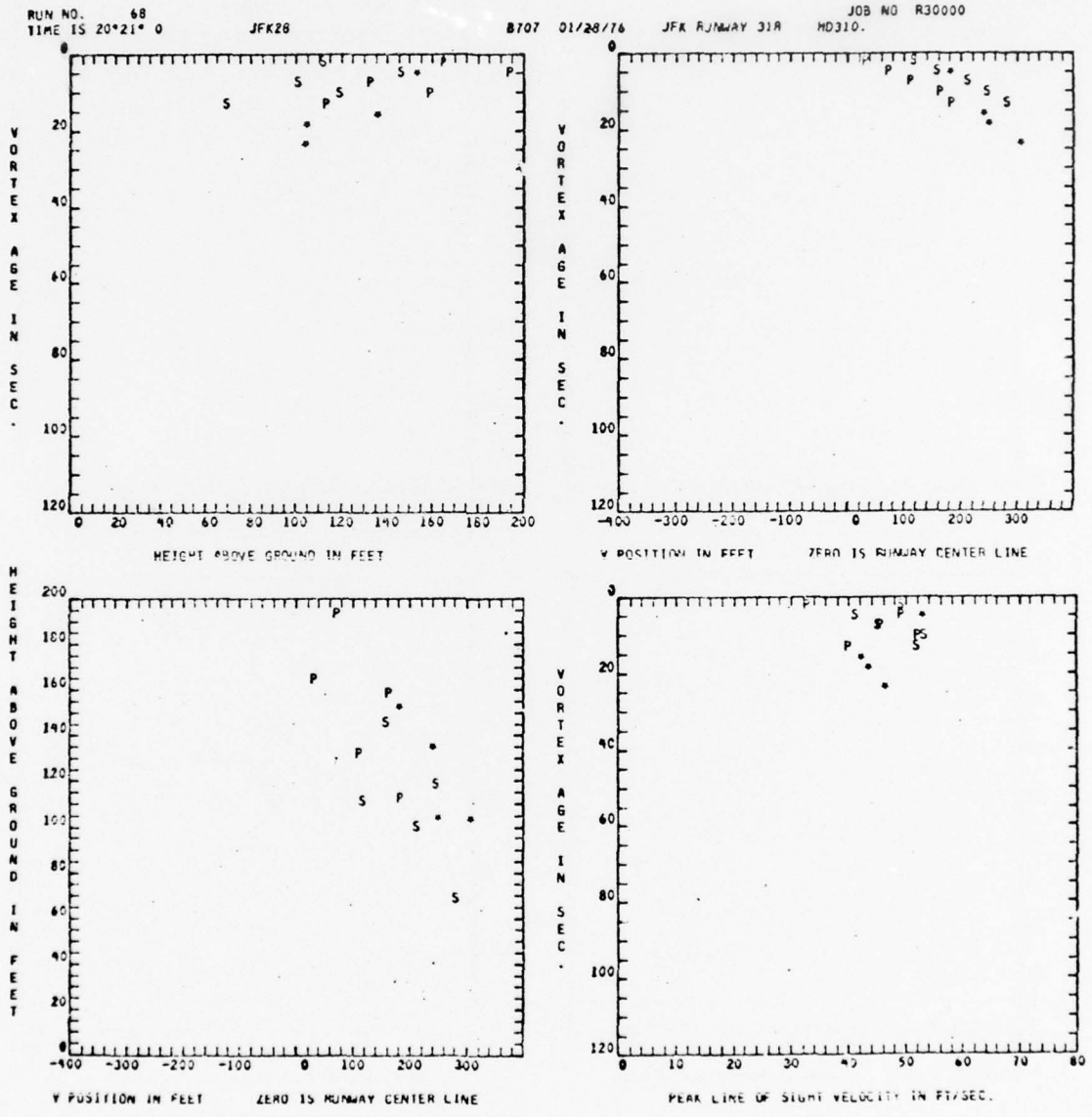

RUN NO. 57
TIME IS 19°55° 0
JFK28
B707 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

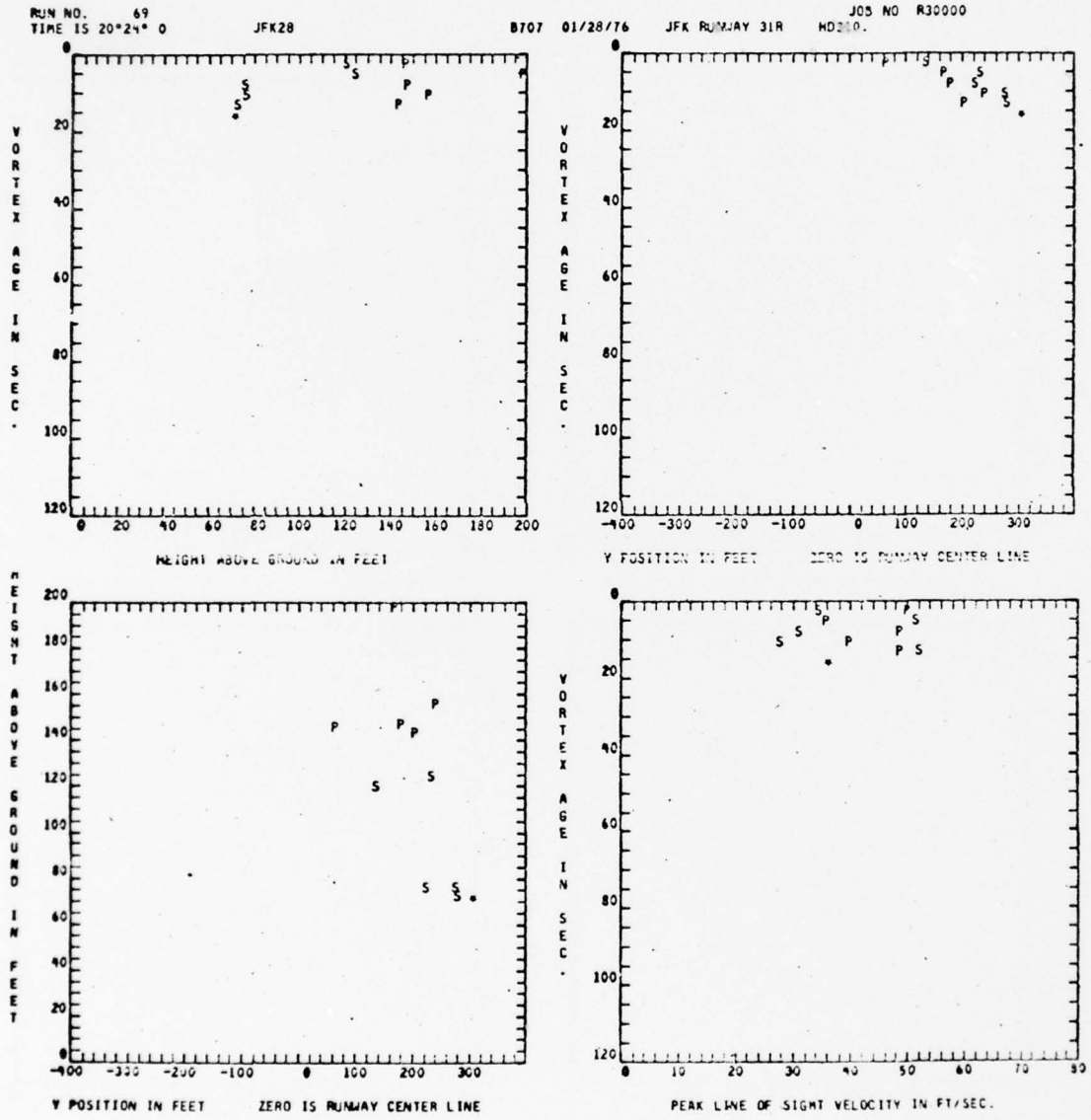

RUN NO. 61
TIME IS 20° 6° 0
JFK28
B727 01/26/76 JFK RUNWAY 31R HD310.
JOB NO RJ0000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 65
TIME IS 20°13° 0
JFK28
B707 01/28/76 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 66
TIME IS 20°17° 0
JFK28
B727 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 67
TIME IS 20°19° 0
JFK28
B707 01/28/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 68
TIME IS 20°21° 0
JFK28
B707 01/28/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 69
TIME IS 20°24° 0
JFK28
B707 01/28/76 JFK RUNWAY 31R HD200.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

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                    JFK30
$DATA
IGROUP  =              +0
ISFILE  =              +1,          +1,          +1000,        +1000,
                    +1000,       +1000,       +1000,        +1000,
                    +1000,       +1000,       +1000,        +1000,
                    +1000,       +1000,       +1000,        +1000,
                    +1000,       +1000,       +1000,        +1000
NRUN    =             +57
ZLASER  =    .70000000E+01
ZLASCN  =    .00000000E+00
INTVEL  =              +2
NPSUF   =              +4
APERCT  =    .10000000E+00
BPERCT  =    .10000000E+00
CPERCT  =    .50000000E+00
RPERCT  =    .31415927E+00
EPERCT  =    .20000000E+01
NOISEF  =              +0
ADJ1    =    .00000000E+00
ANGSW   =    .00000000E+00
WANGLE  =    .00000000E+00
WINDHP  =    .80000000E+03
LFLIP   =              +2
ISINE   =              +2
EDIT    =    .20000000E+00
MOVAVE  =              +5
YLIM    =    .00000000E+00,   .00000000E+00
ZLIM    =    .00000000E+00,   .00000000E+00
ISCALE  =              +1
YR      =    .40000000E+03
YL      =   -.40000000E+03
ZT      =    .20000000E+03
TMAX    =    .12000000E+03
VMAX    =    .80000000E+02
NSPLT   =             +12
JPROF   =              +1
IMULT   =              +0
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IOP2    =              +2
IOP3    =              +2
IOP4    =              +1

$END
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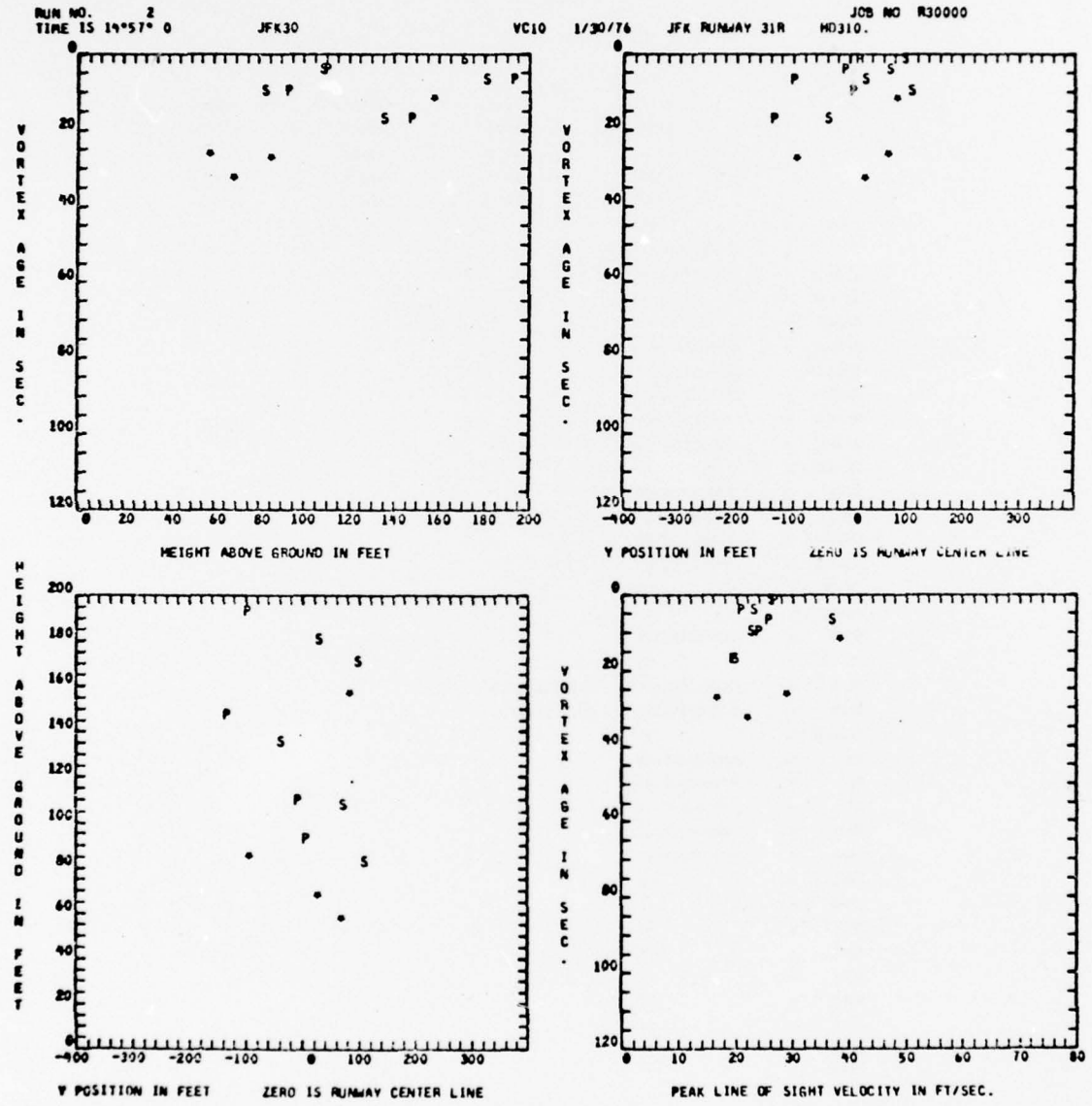
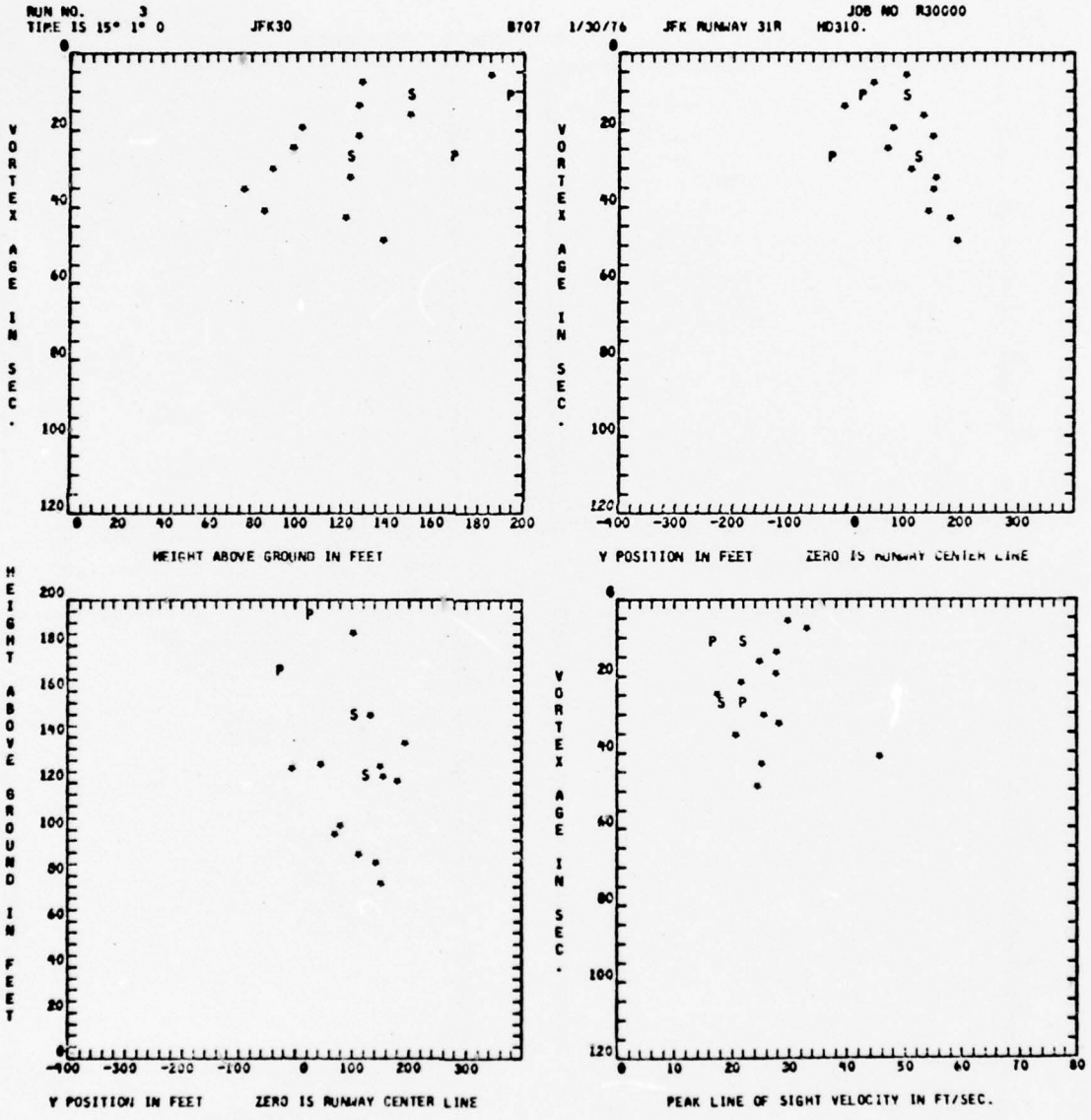
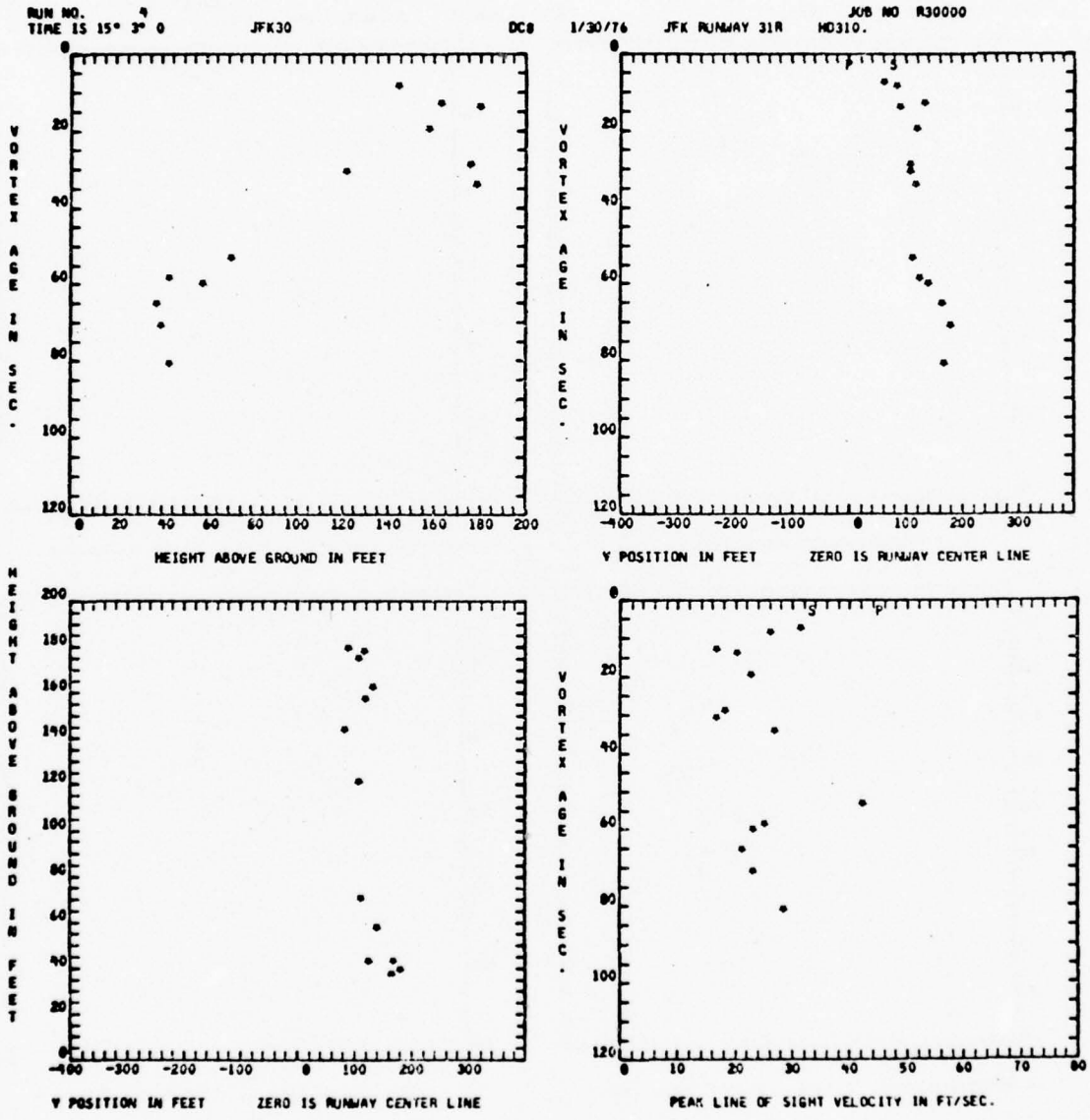
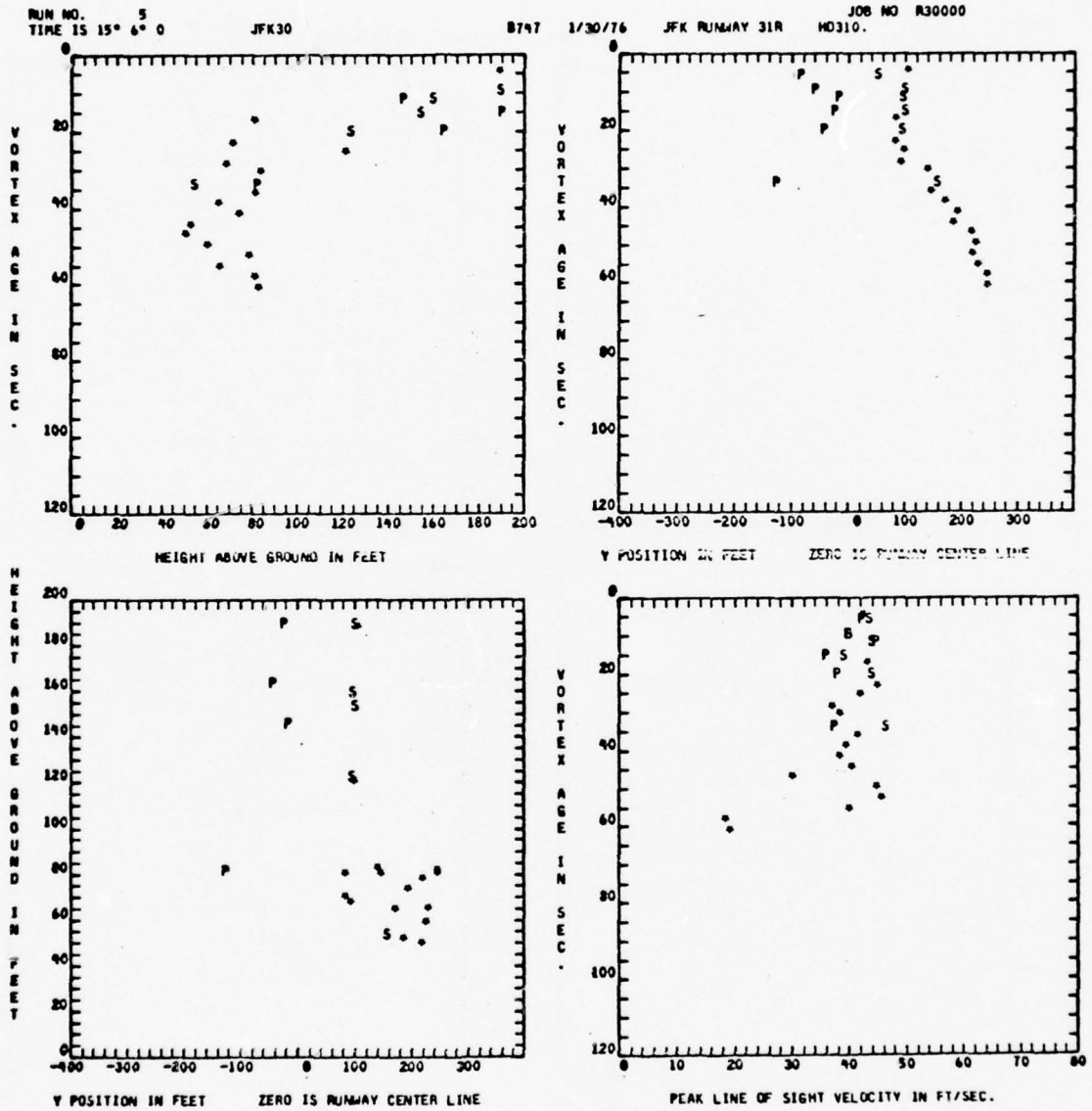
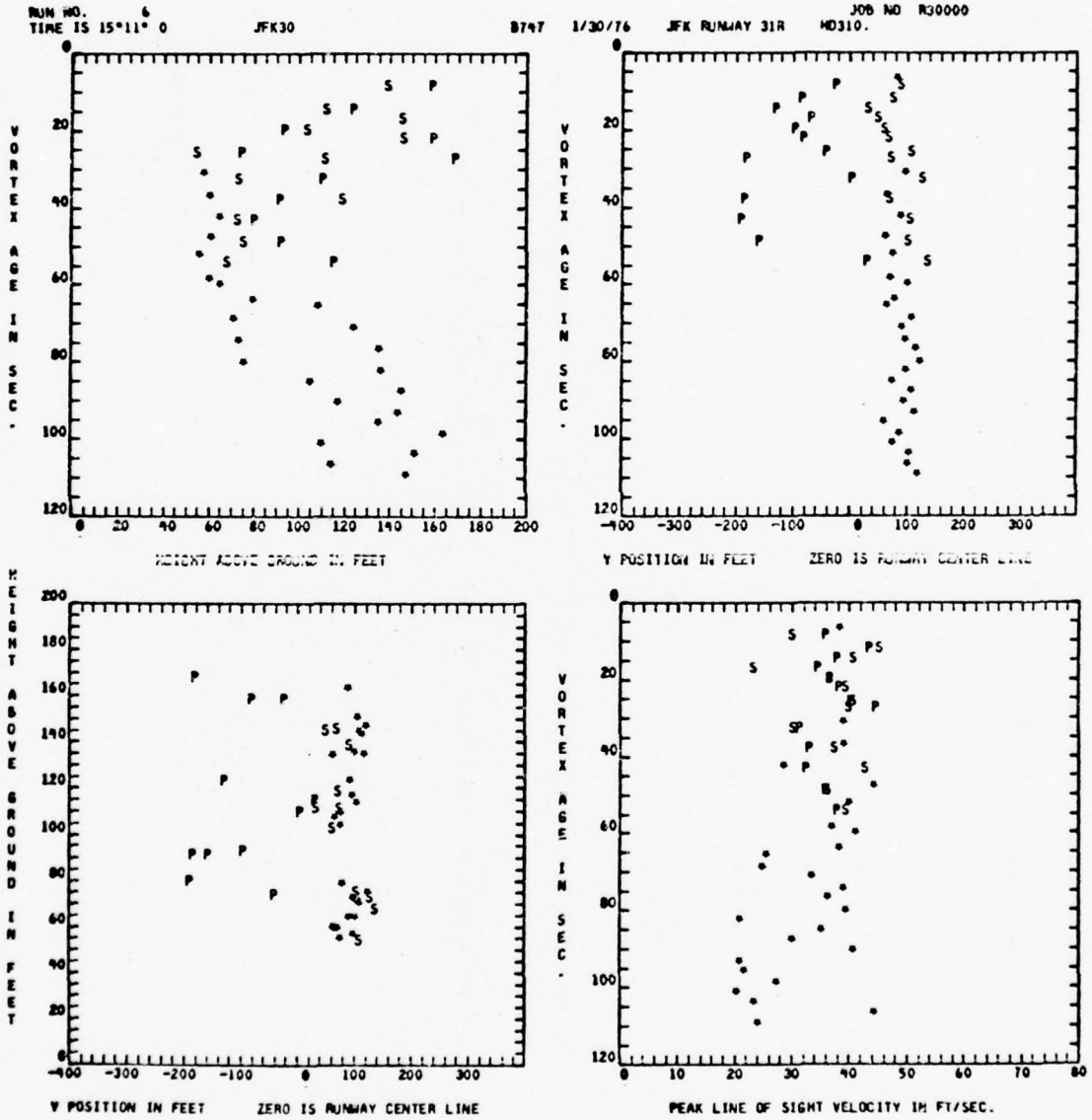
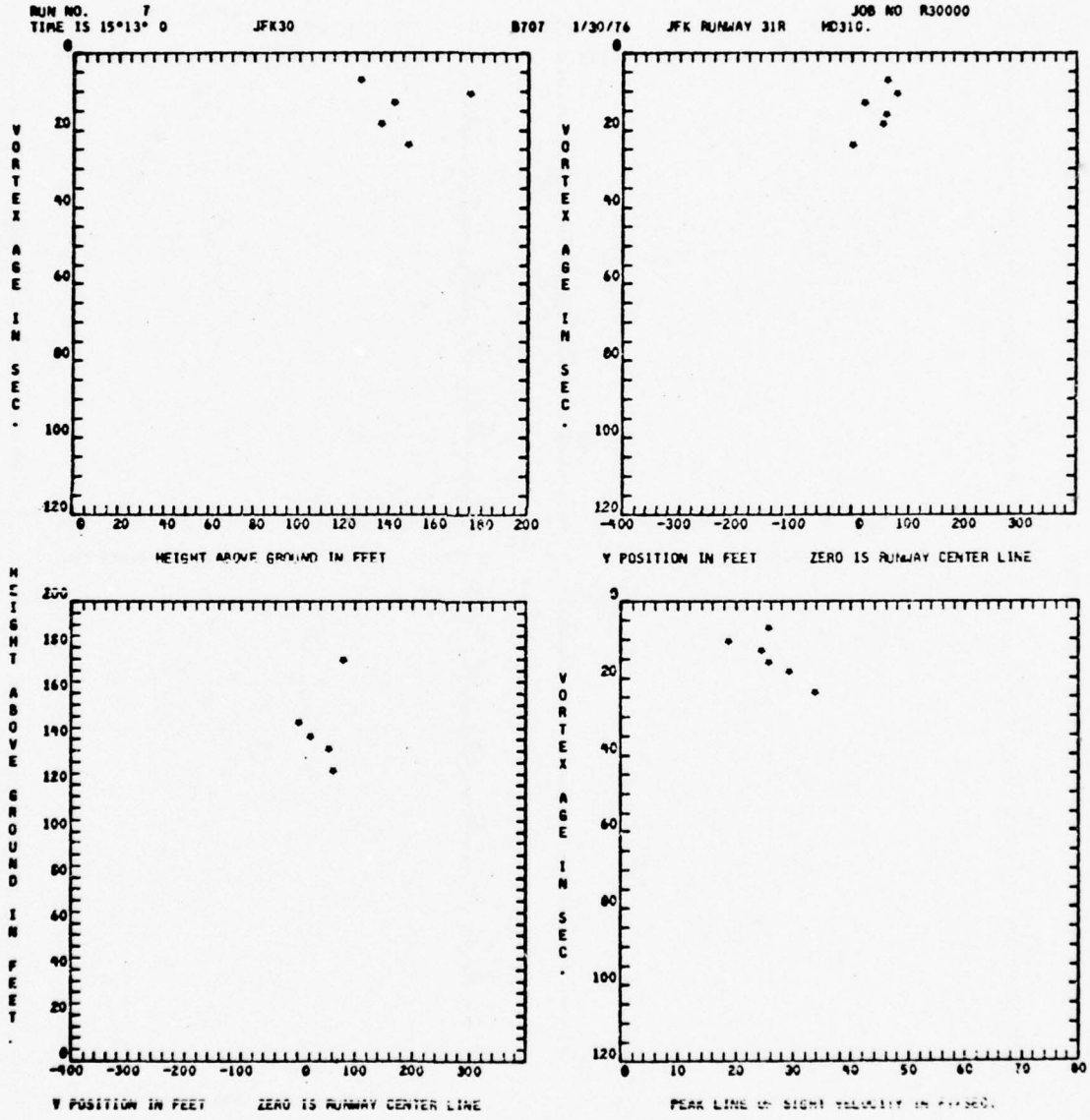

RUN NO. 2
TIME IS 14°57° 0
JFK30
VC10
1/30/76
JFK RUNWAY 31R
JOB NO R30000
HD310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

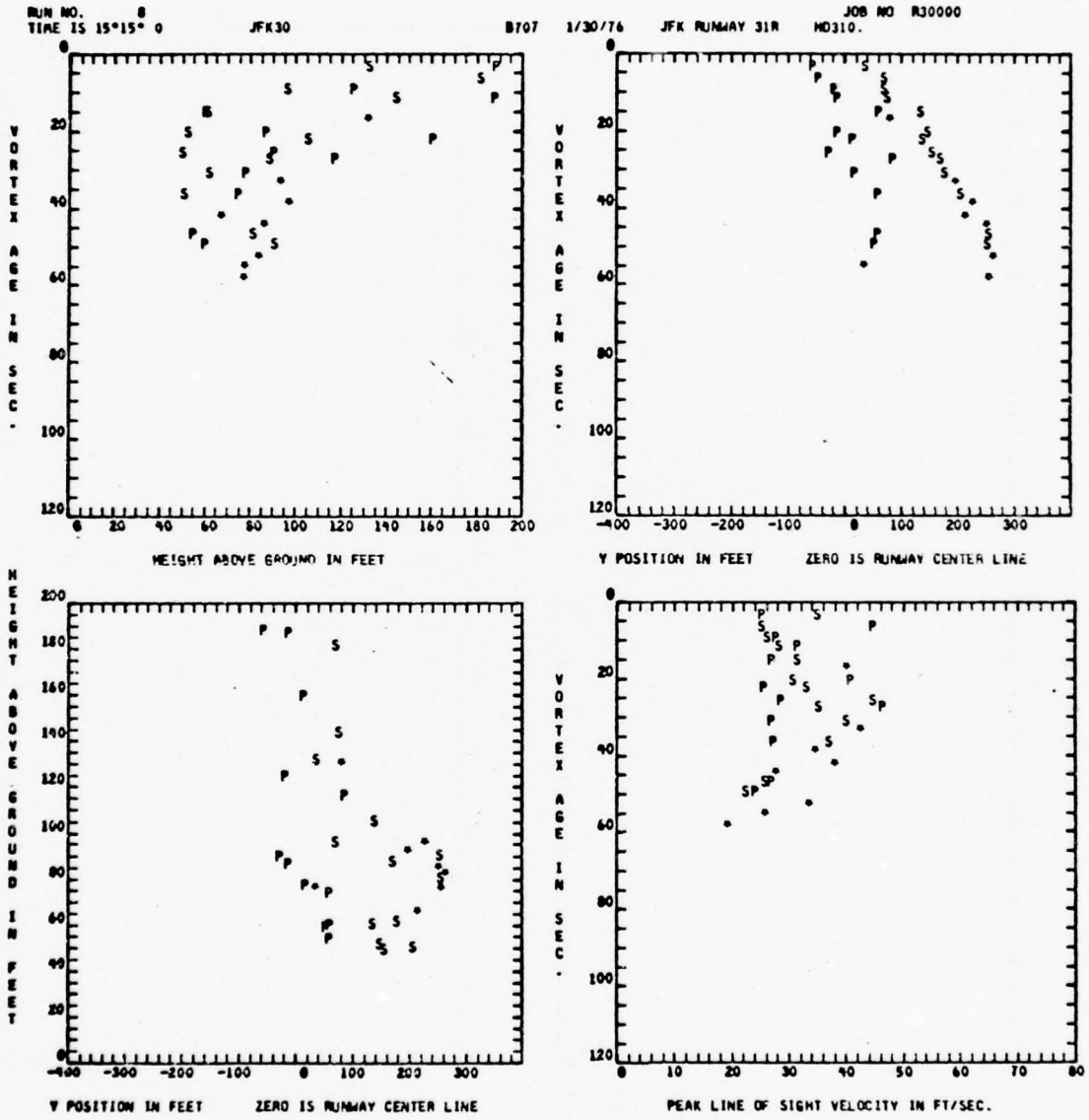

RUN NO. 3
TIME IS 15° 1° 0
JFK30
B707
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

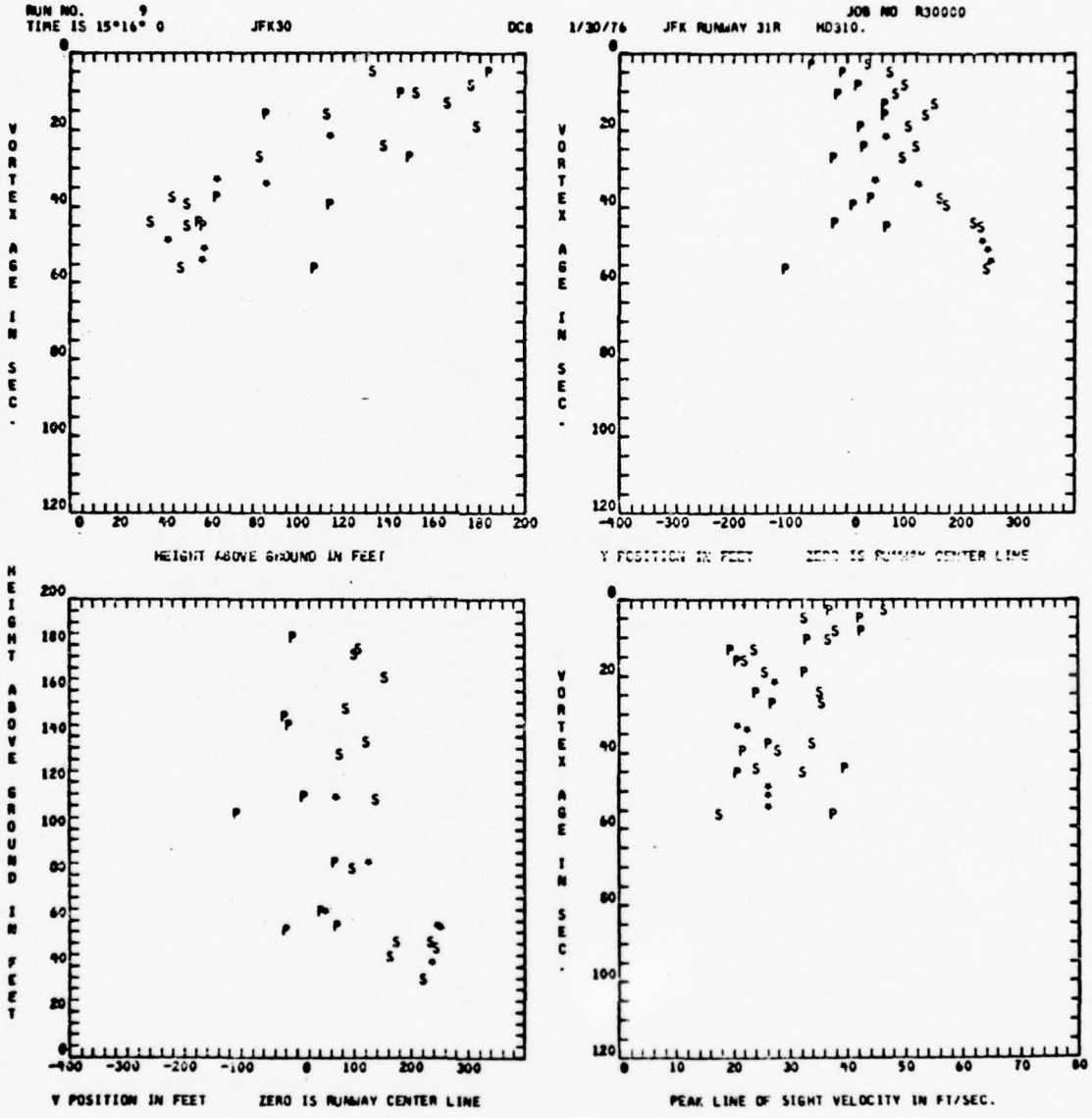

RUN NO. 4
TIME IS 15° 3° 0
JFK30
DC8
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

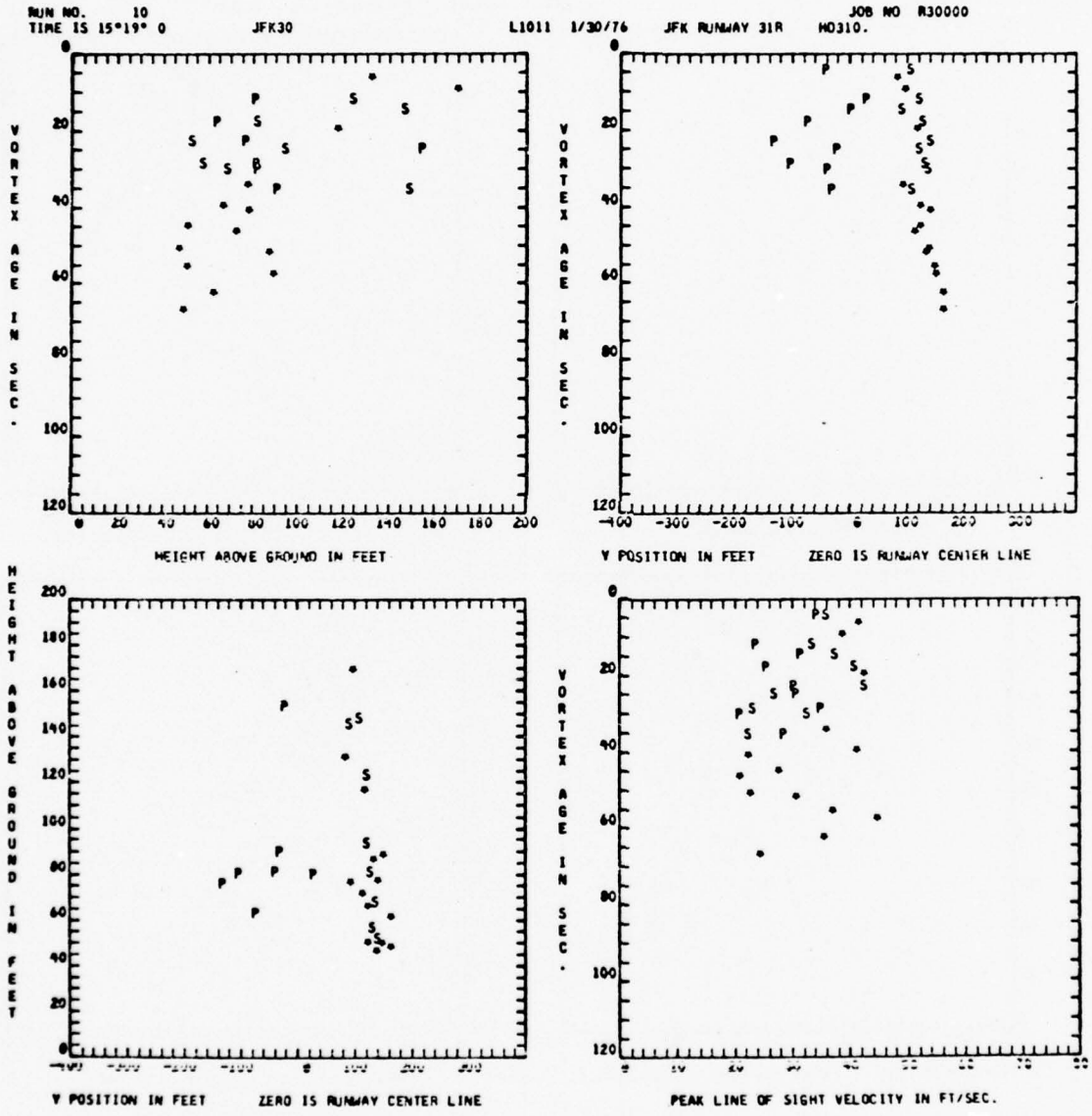

RUN NO. 5
TIME IS 15° 6° 0
JFK30
B747 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

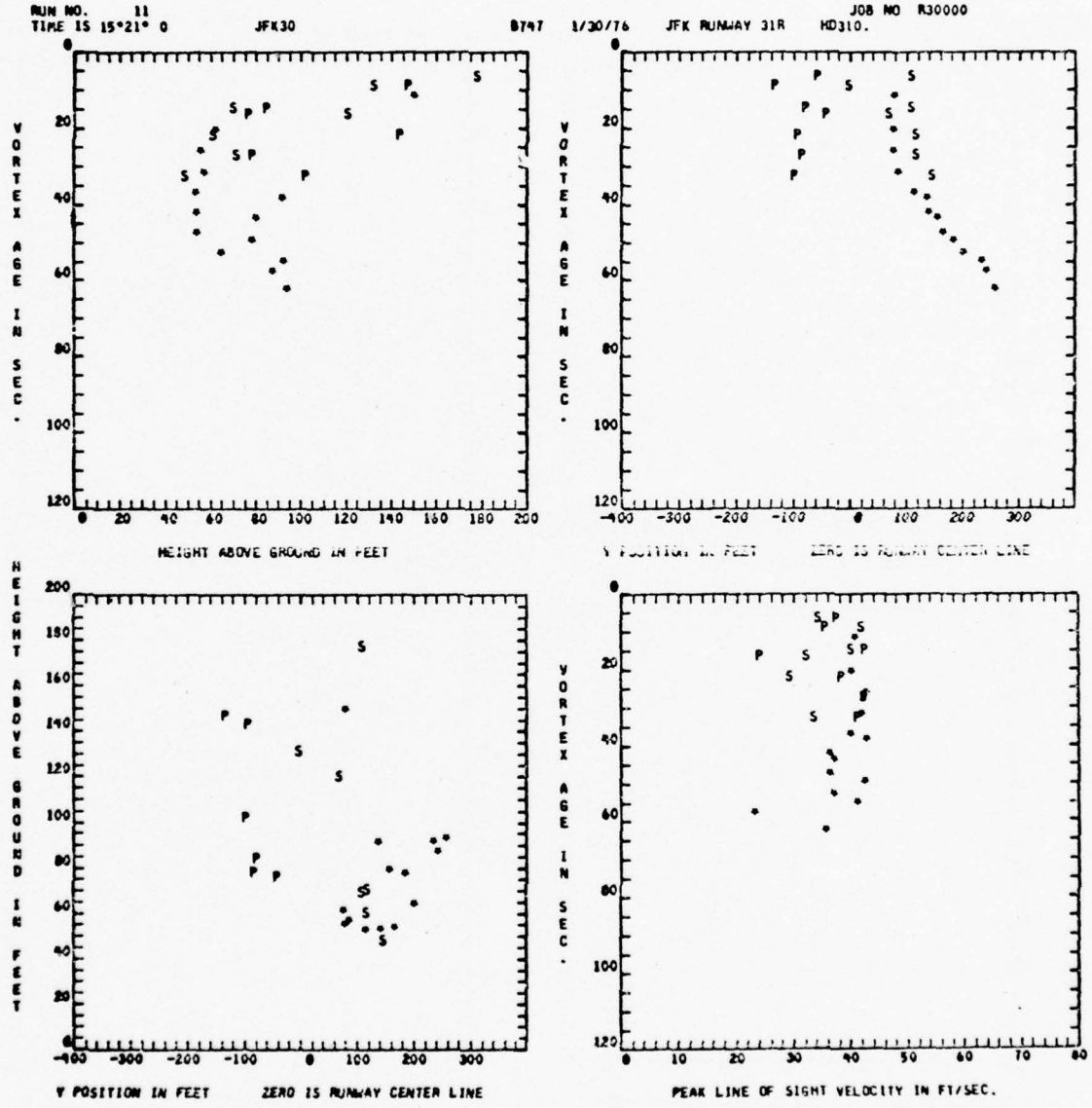

RUN NO. 6
TIME IS 15°11° 0
JFK30
B747
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

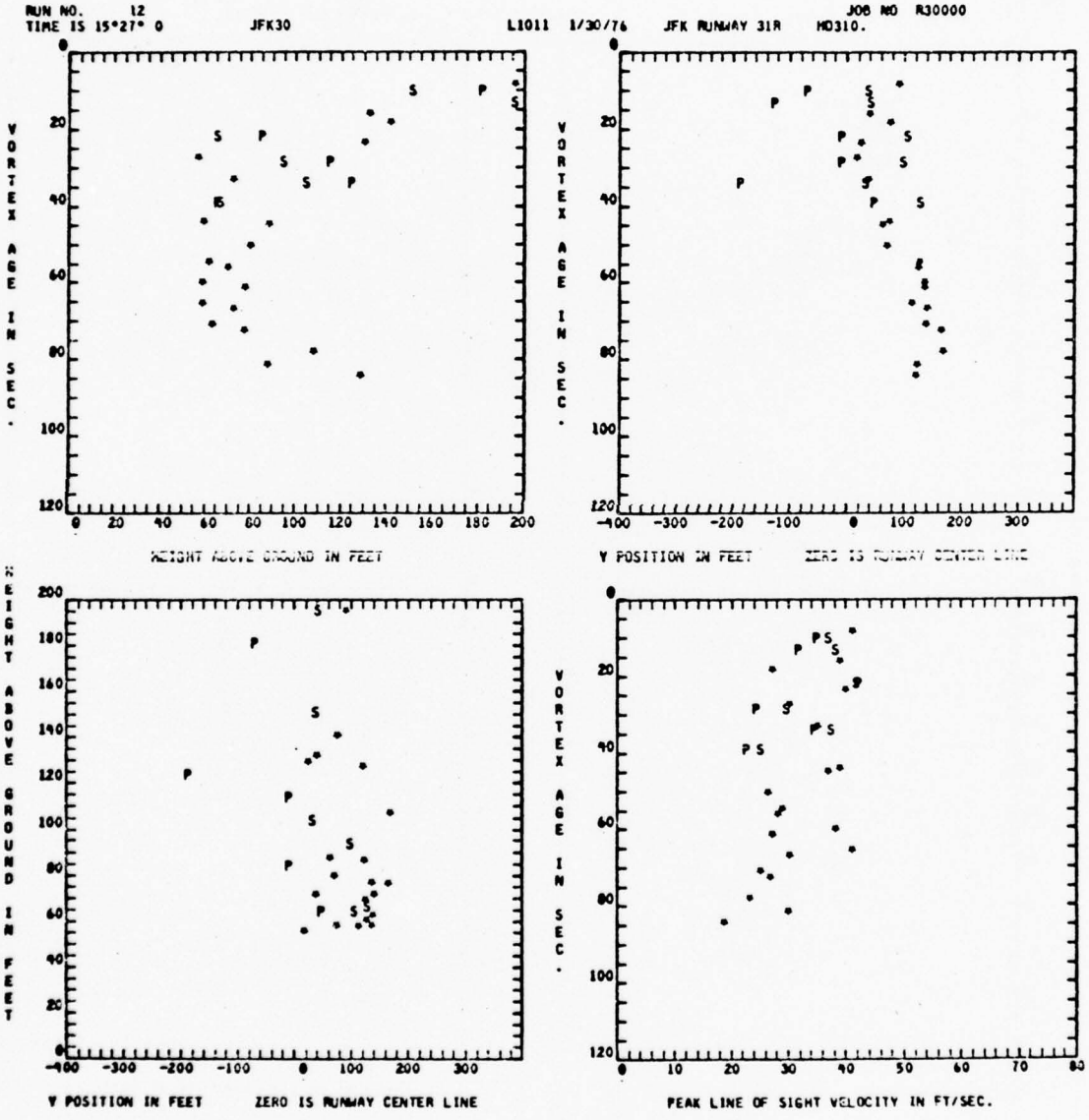

RUN NO. 7
TIME IS 15°13° 0
JFK30
B707
1/30/76
JFK RUNWAY 31R
JOB NO R30000
MD31C.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE

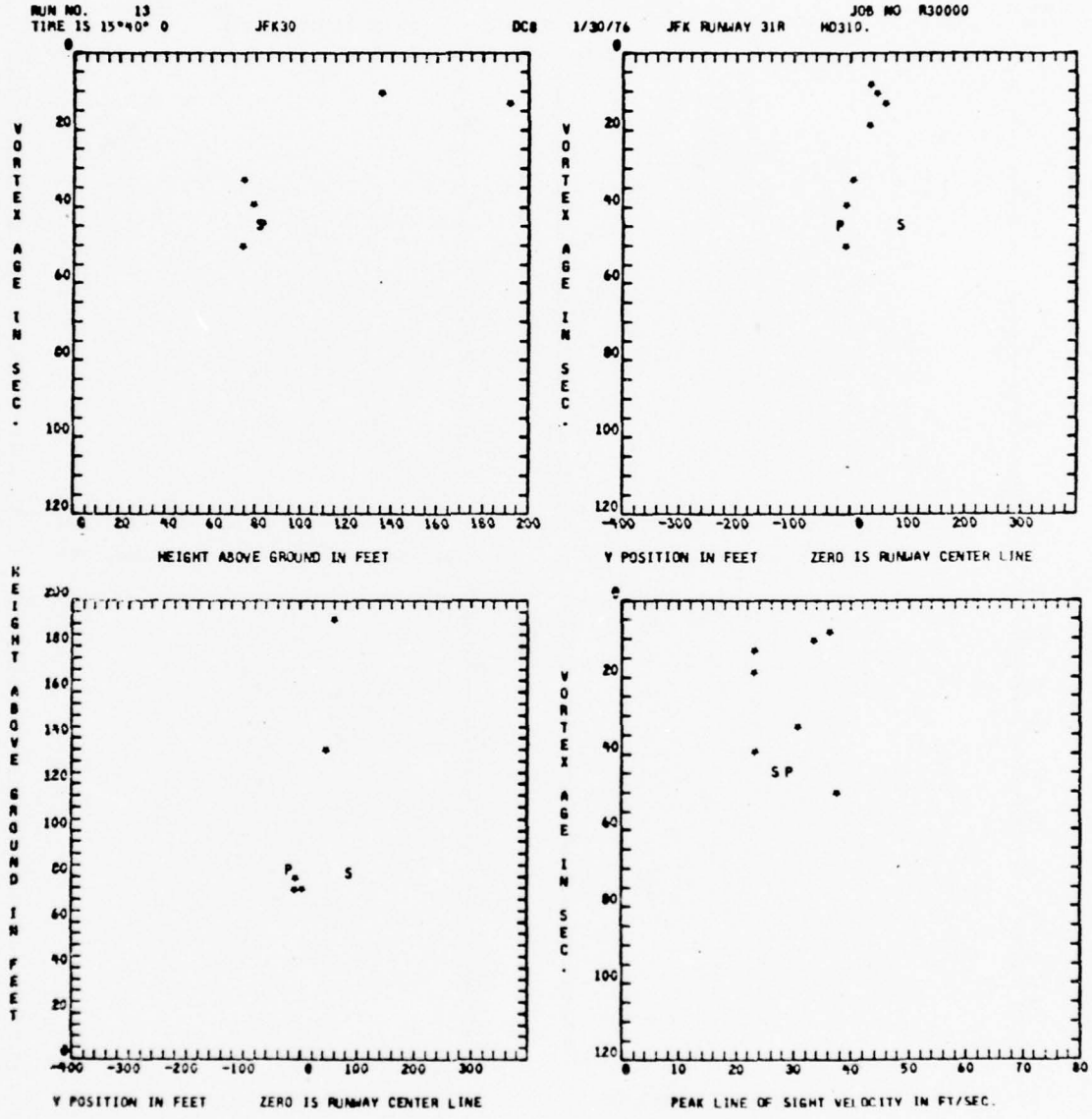

RUN NO. 8
TIME IS 15°15° 0
JFK30
B707 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

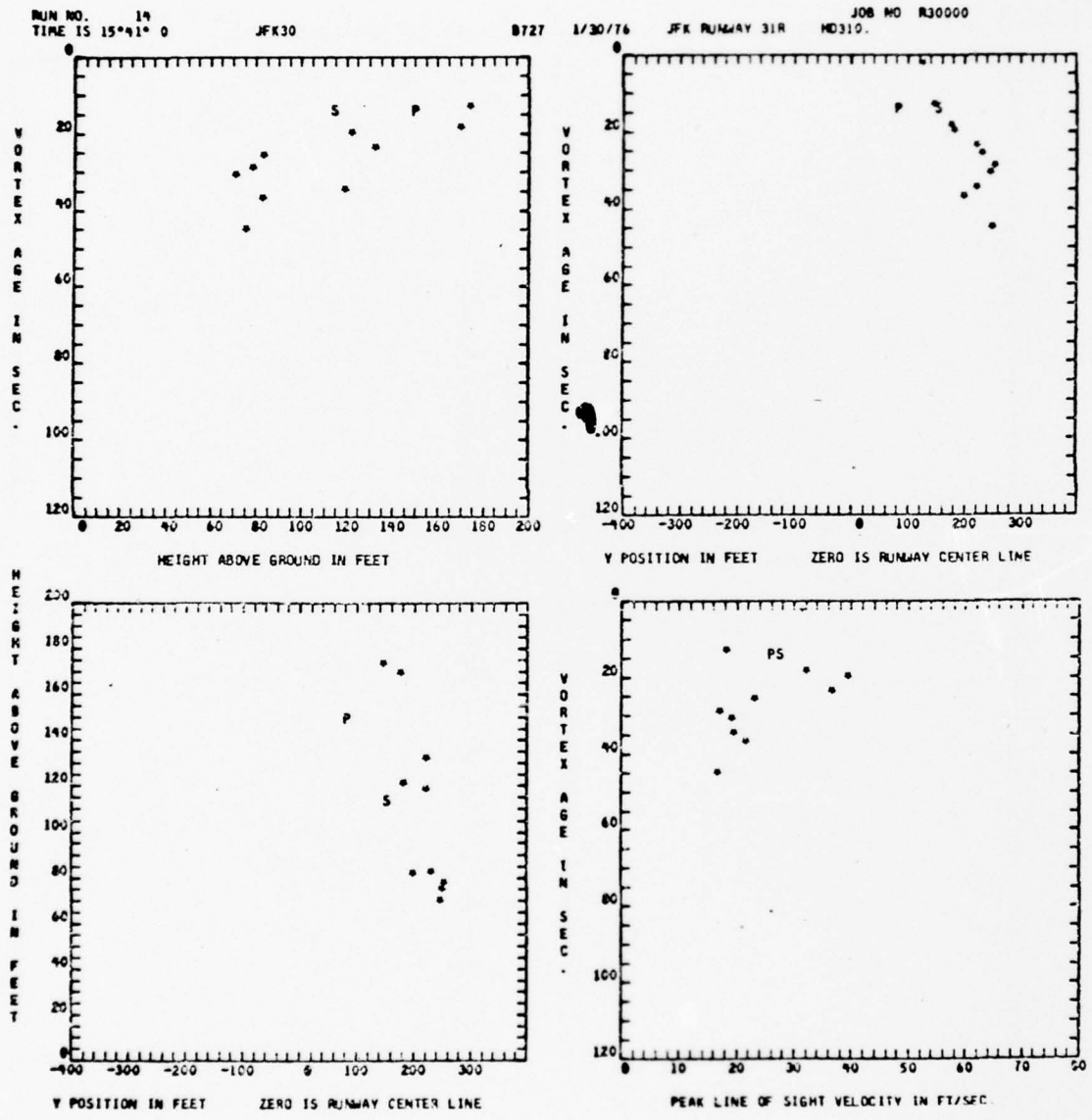

RUN NO. 9
TIME IS 15°16° 0
JFK30
DC8
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

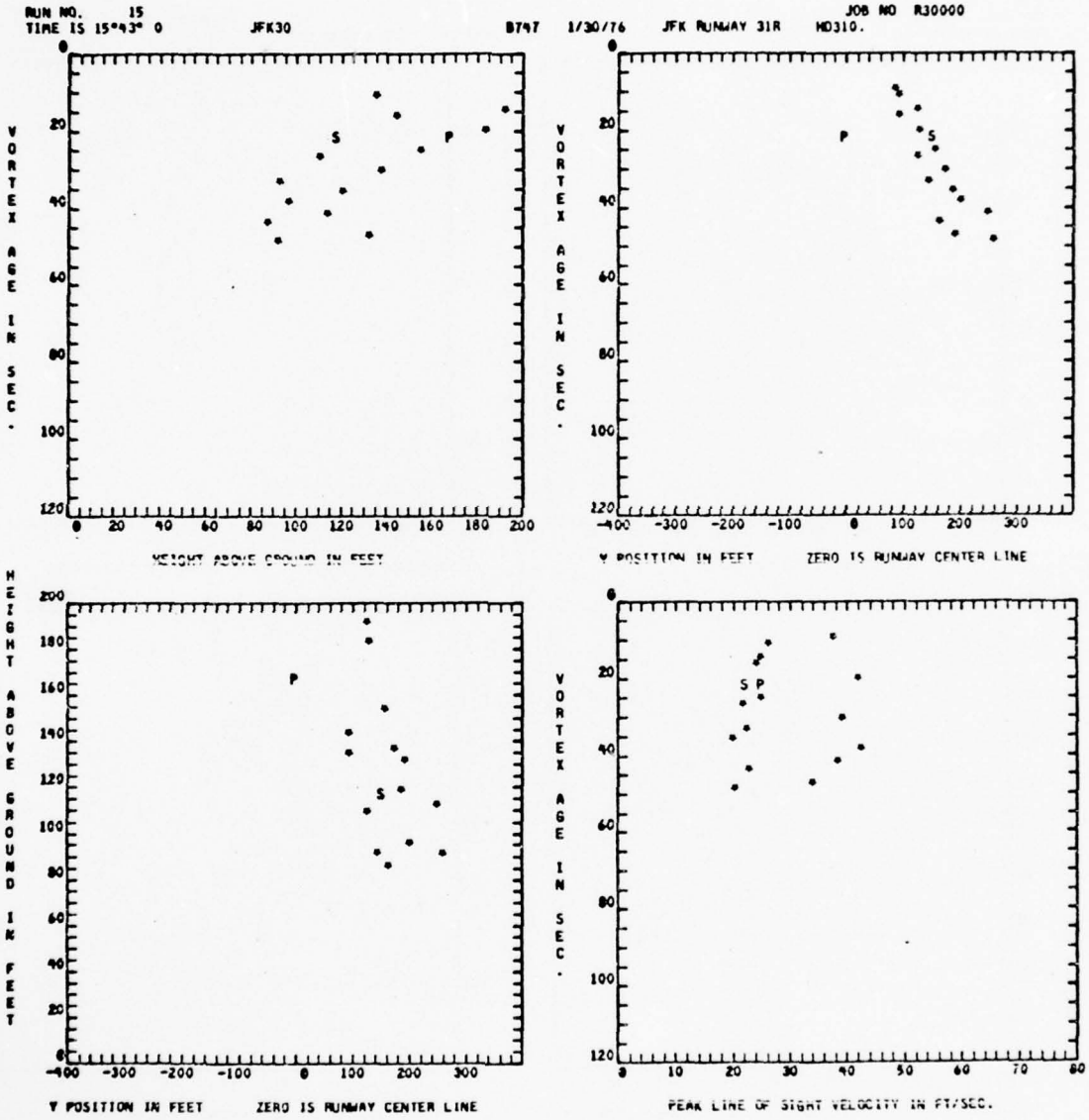

RUN NO. 10
TIME IS 15°19° 0
JFK30
L1011 1/30/76 JFK RUNWAY 31R
JOB NO R30000
H0310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

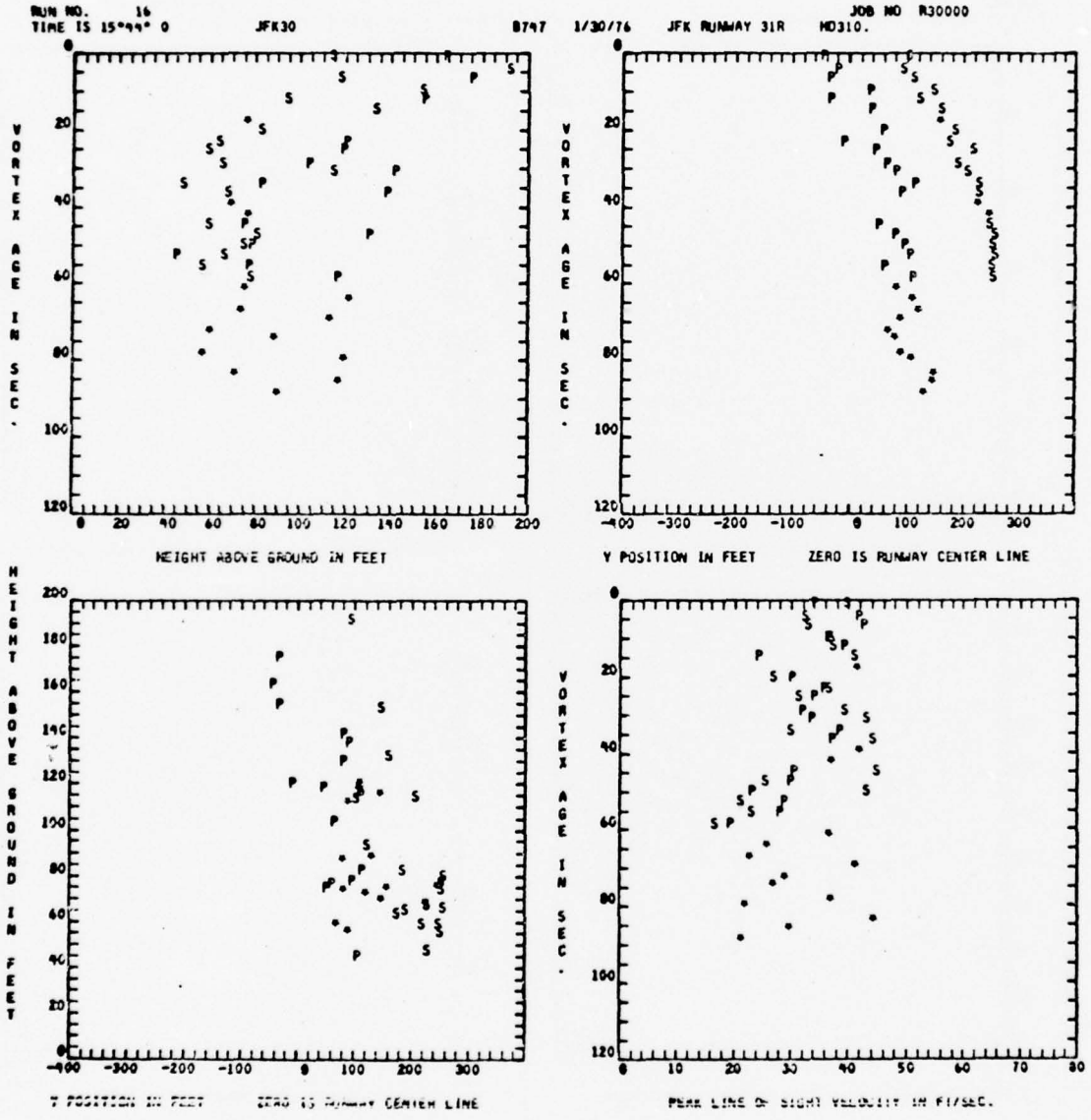

RUN NO. 11
TIME IS 15°21° 0
JFK30
B747
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

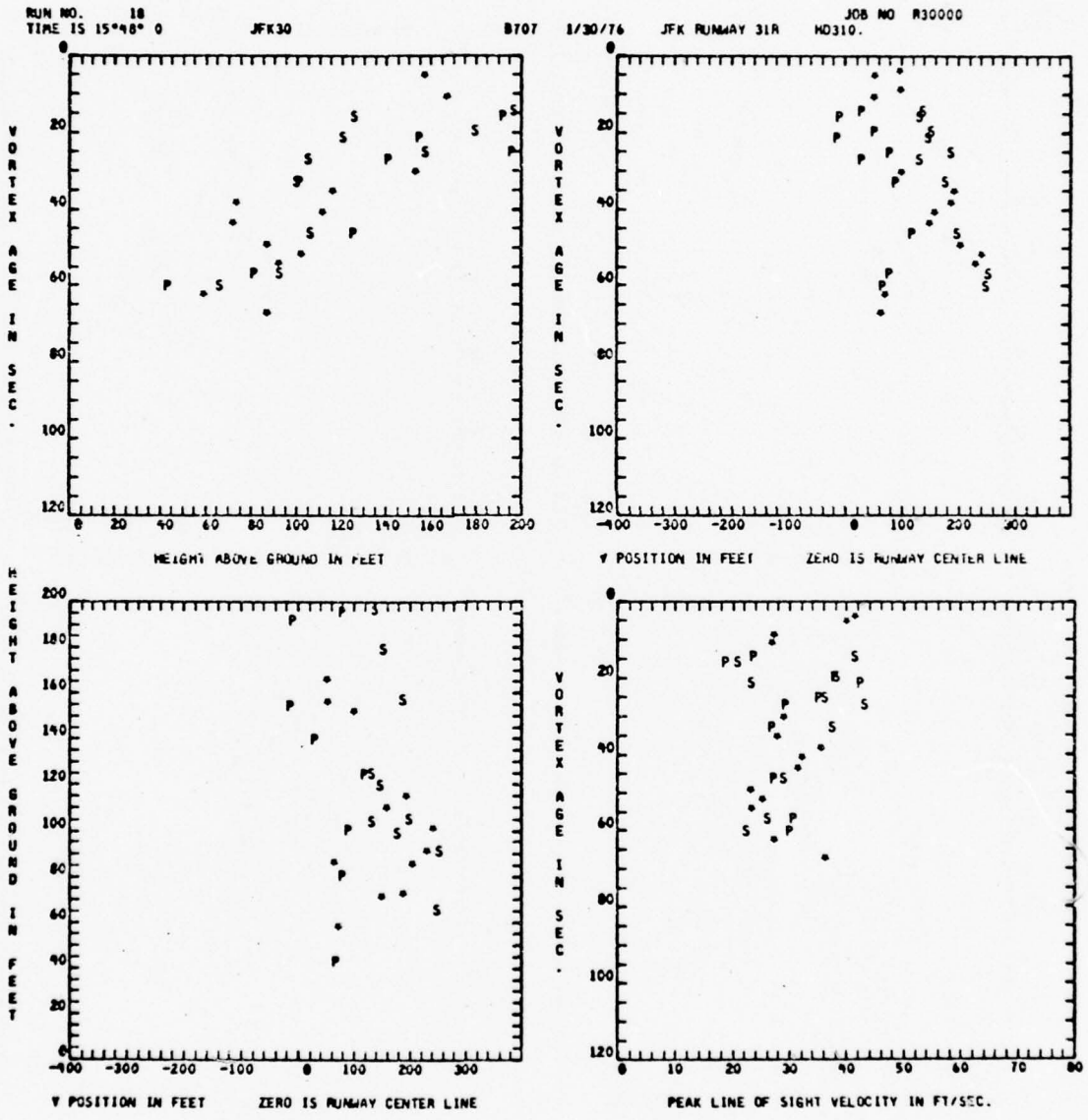

RUN NO. 12
TIME IS 15°27° 0
JFK30
L1011 1/30/76 JFK RUNWAY 31R
JOB NO R30000
MD310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

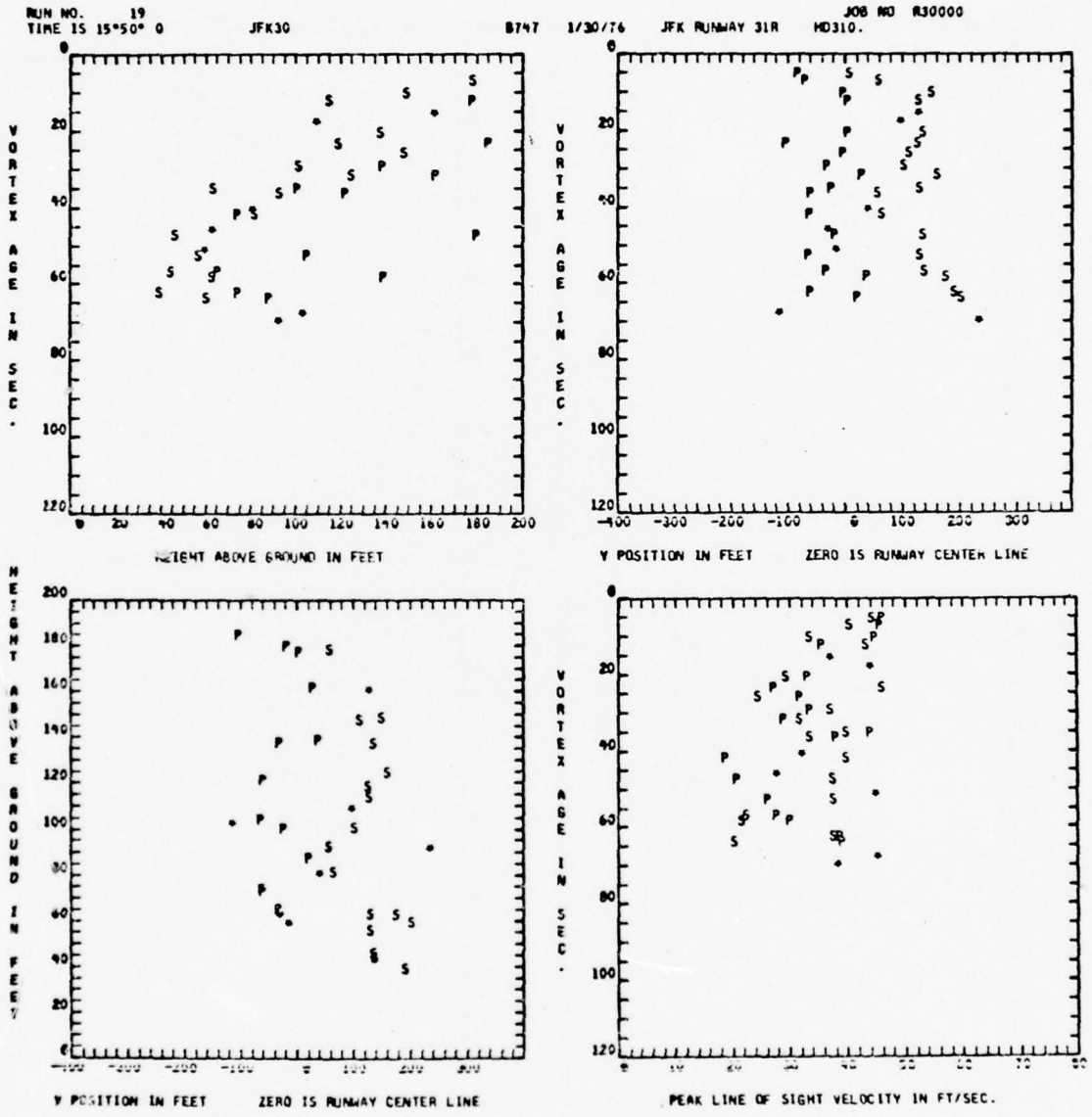

RUN NO. 13
TIME IS 15°40° 0
JFK30
DC8
1/30/76
JFK RUNWAY 31R
HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.
P
S

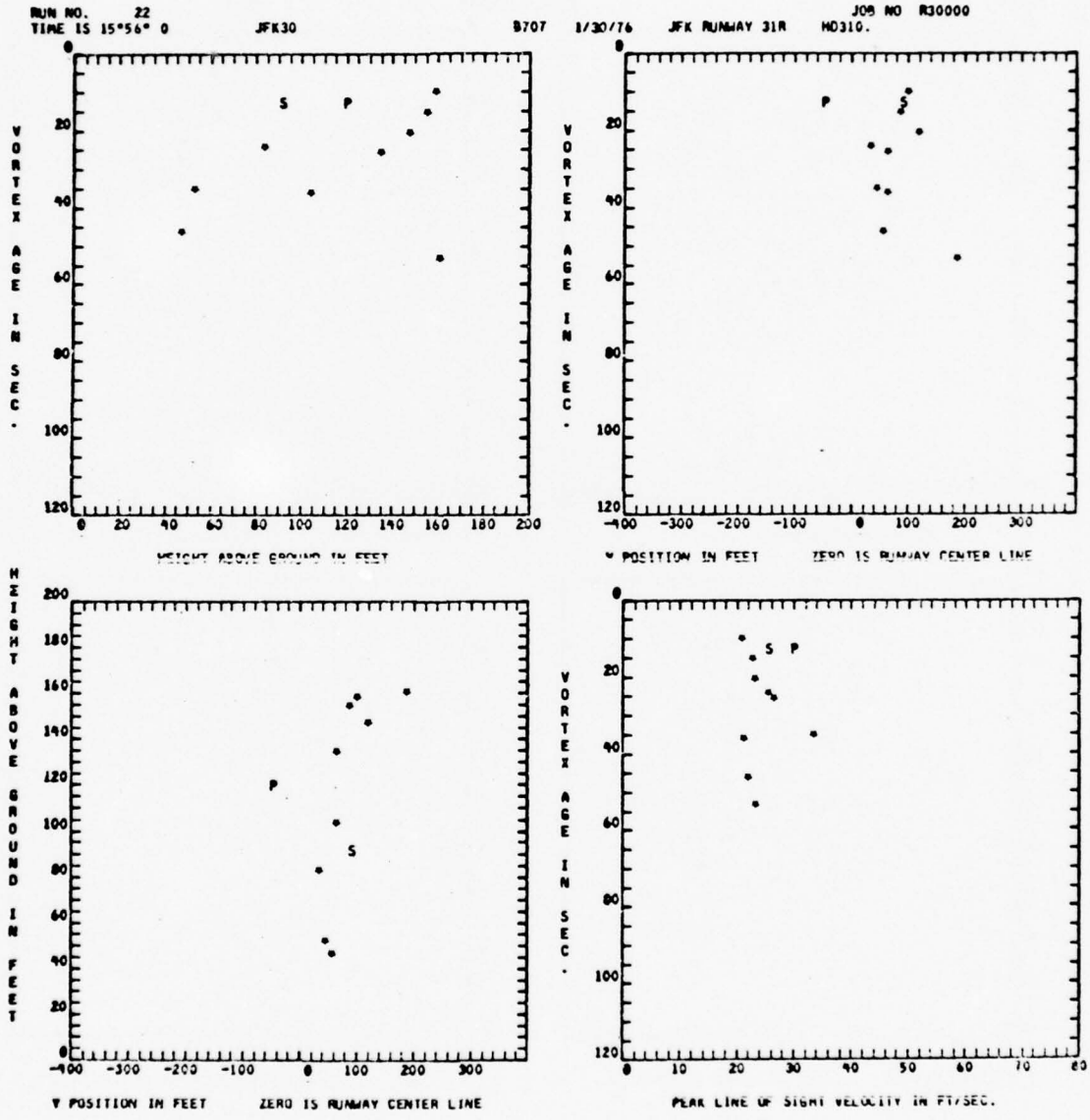

RUN NO. 19
TIME IS 15°41° 0
JFK30
B727
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC

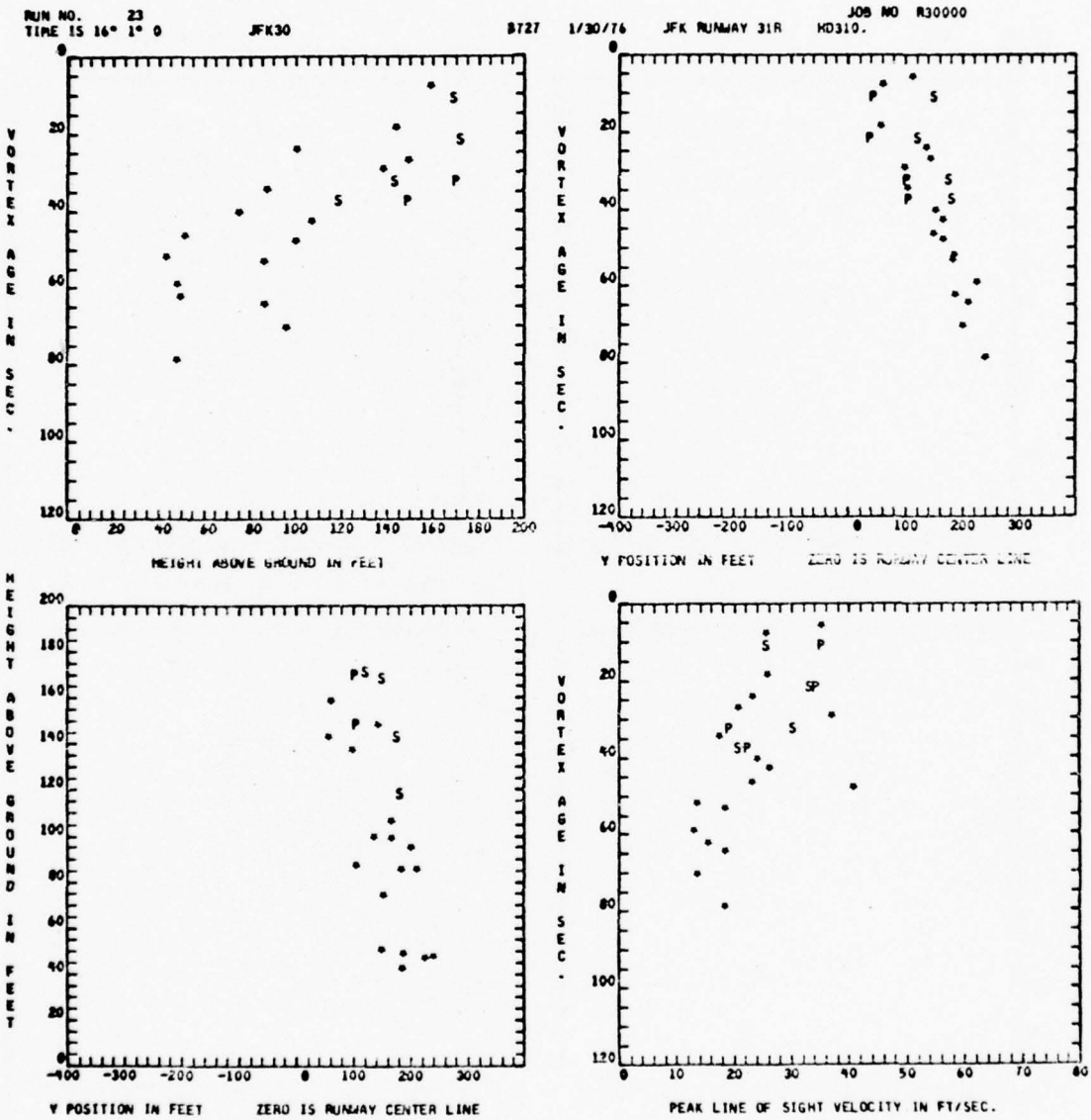

RUN NO. 15
TIME IS 15°43' 0
JFK30
B747 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
WEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

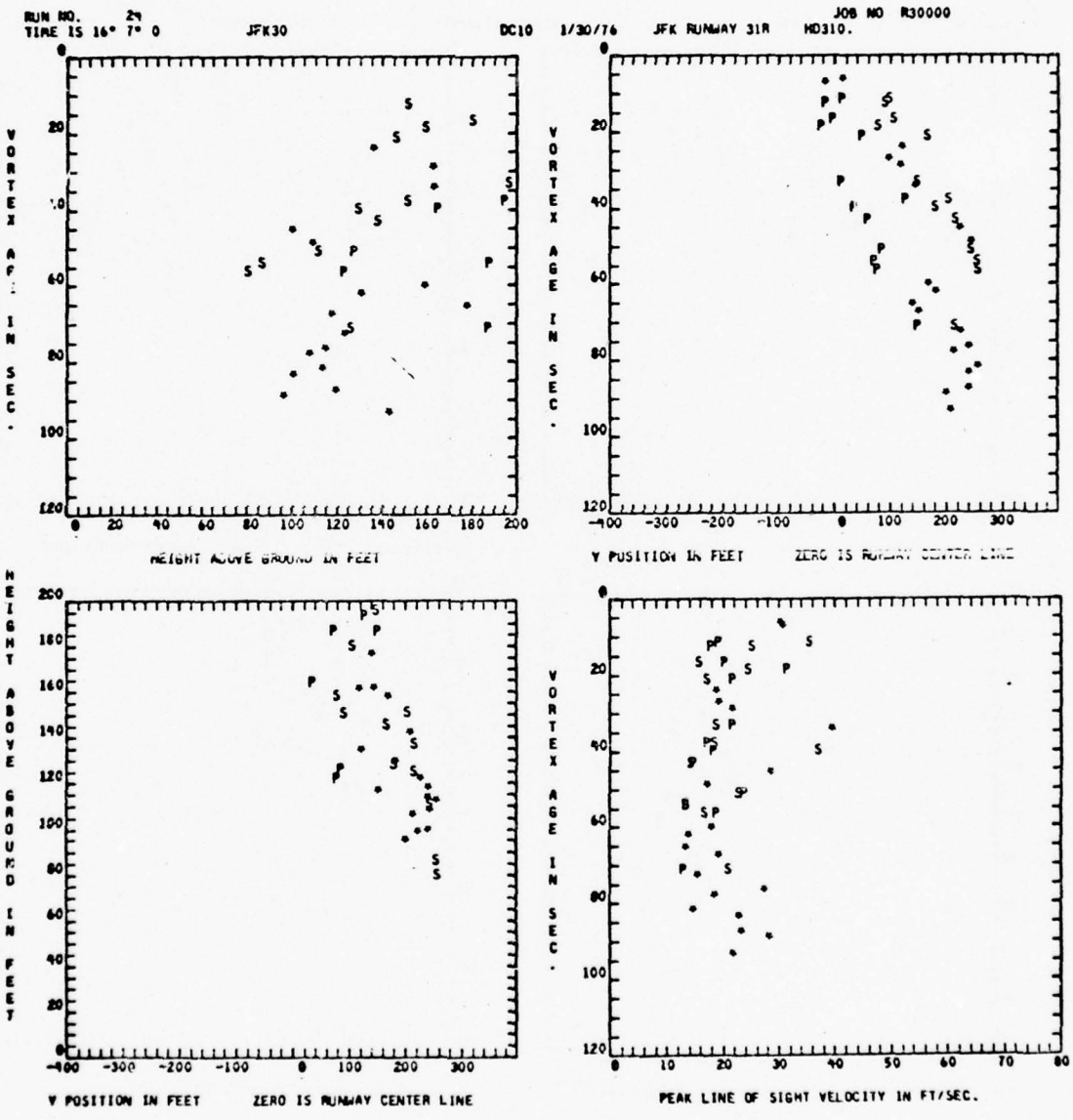

RUN NO. 16
TIME IS 15°49° 0
JFK30
B747 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

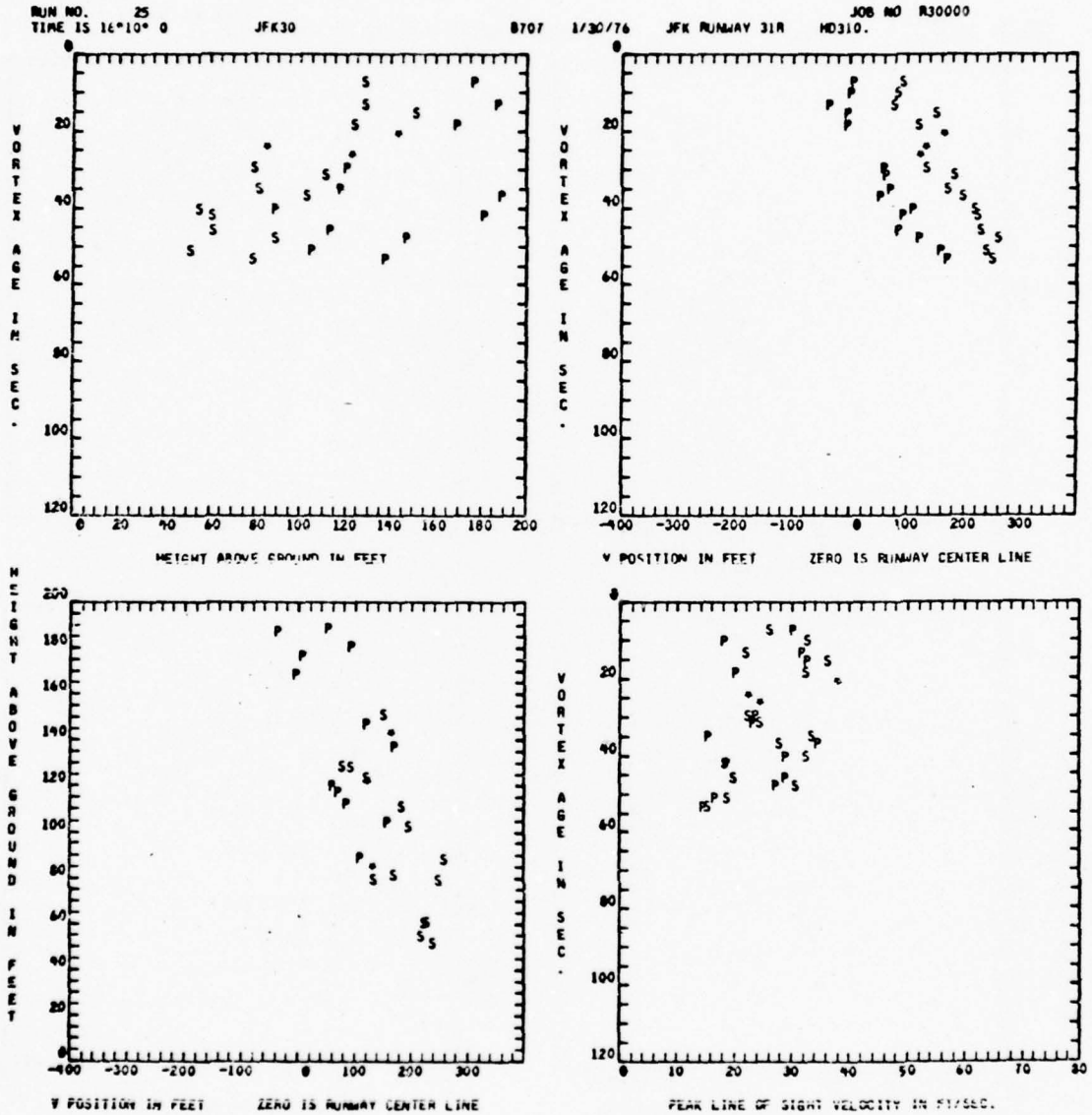

RUN NO. 18
TIME IS 15°48° 0
JFK30
B707
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
V POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

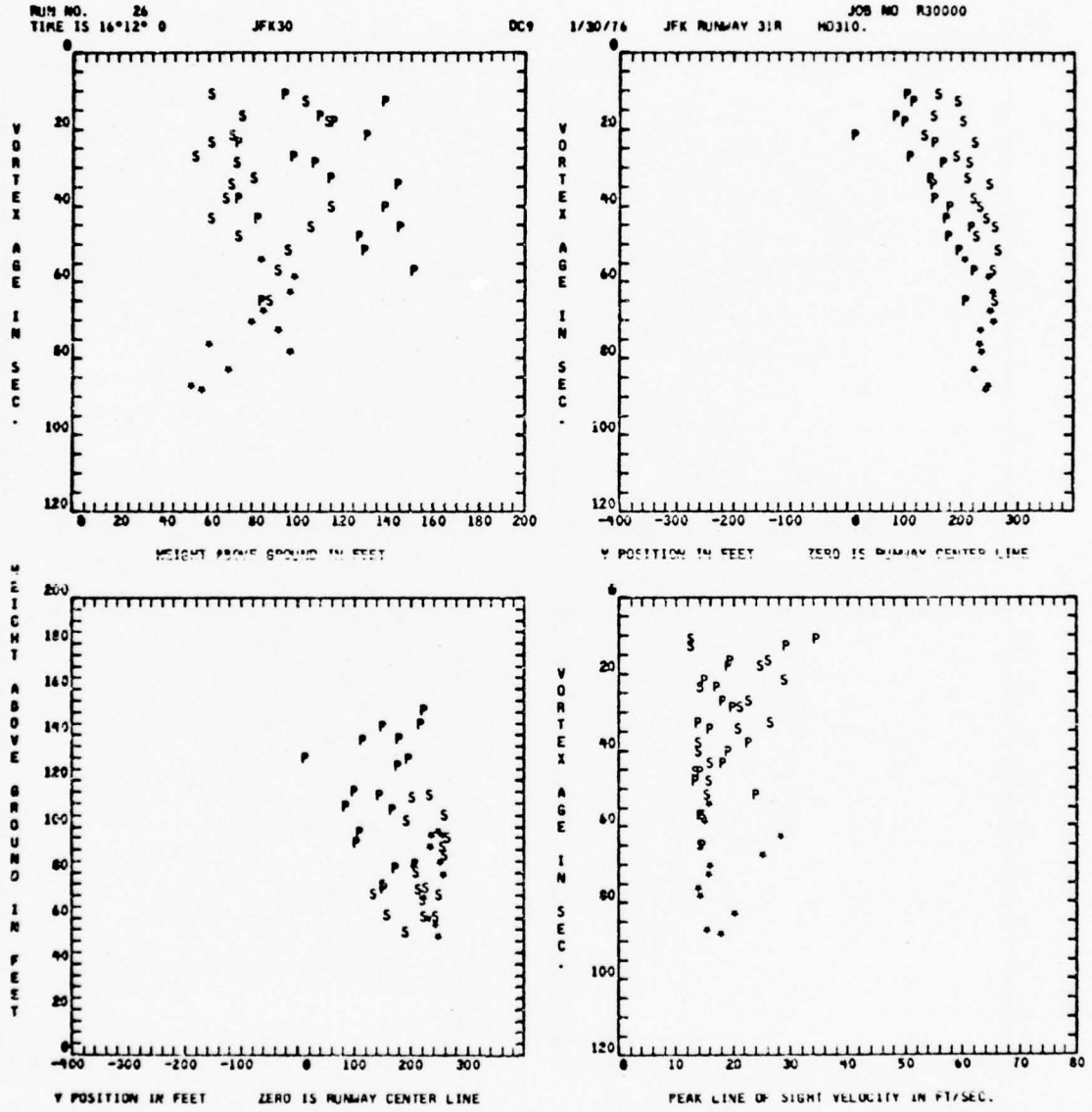

RUN NO. 19
TIME IS 15°50° 0
JFK30
B747 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

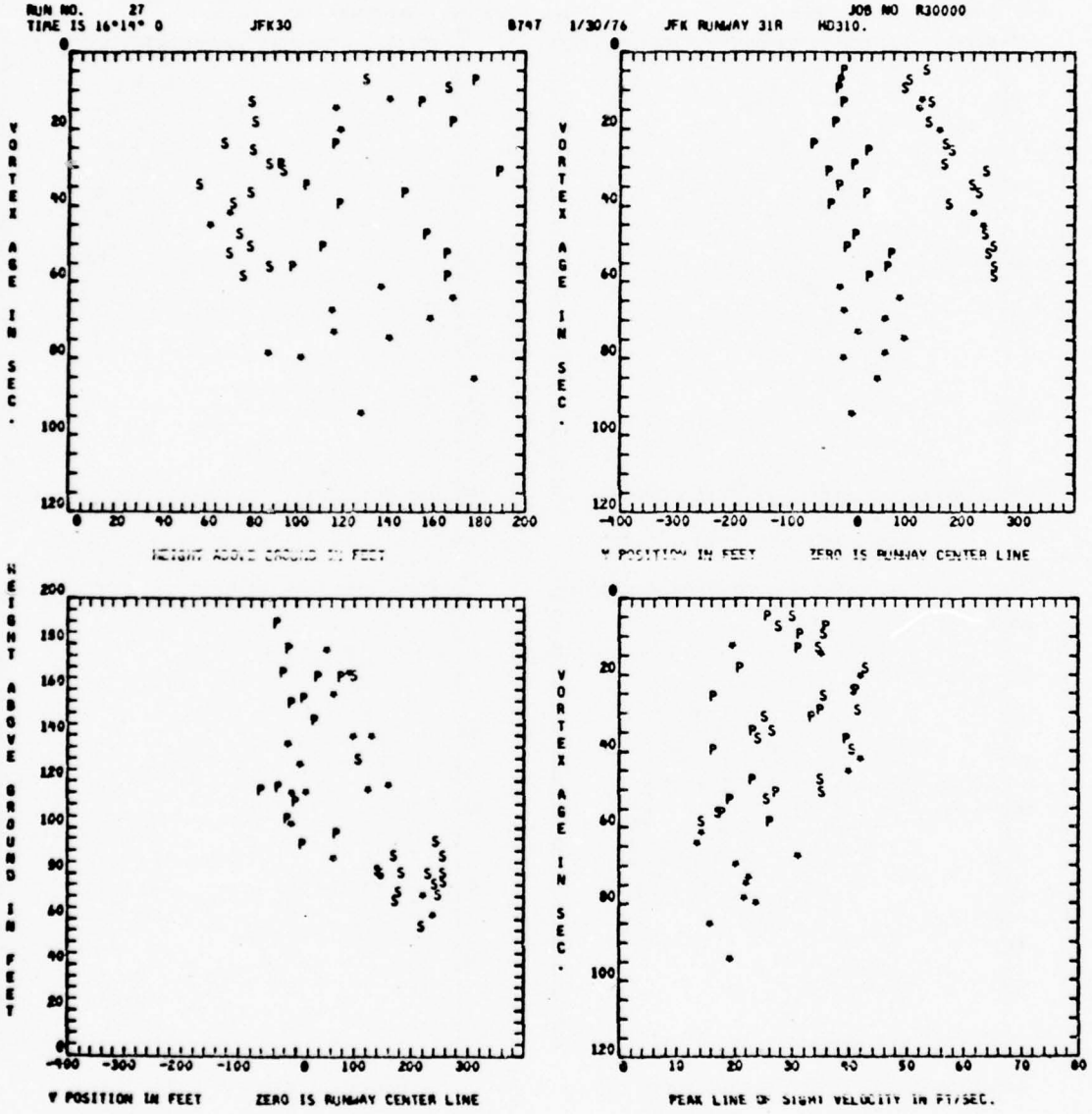

RUN NO. 22
TIME IS 15°56° 0
JFK30
B707
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

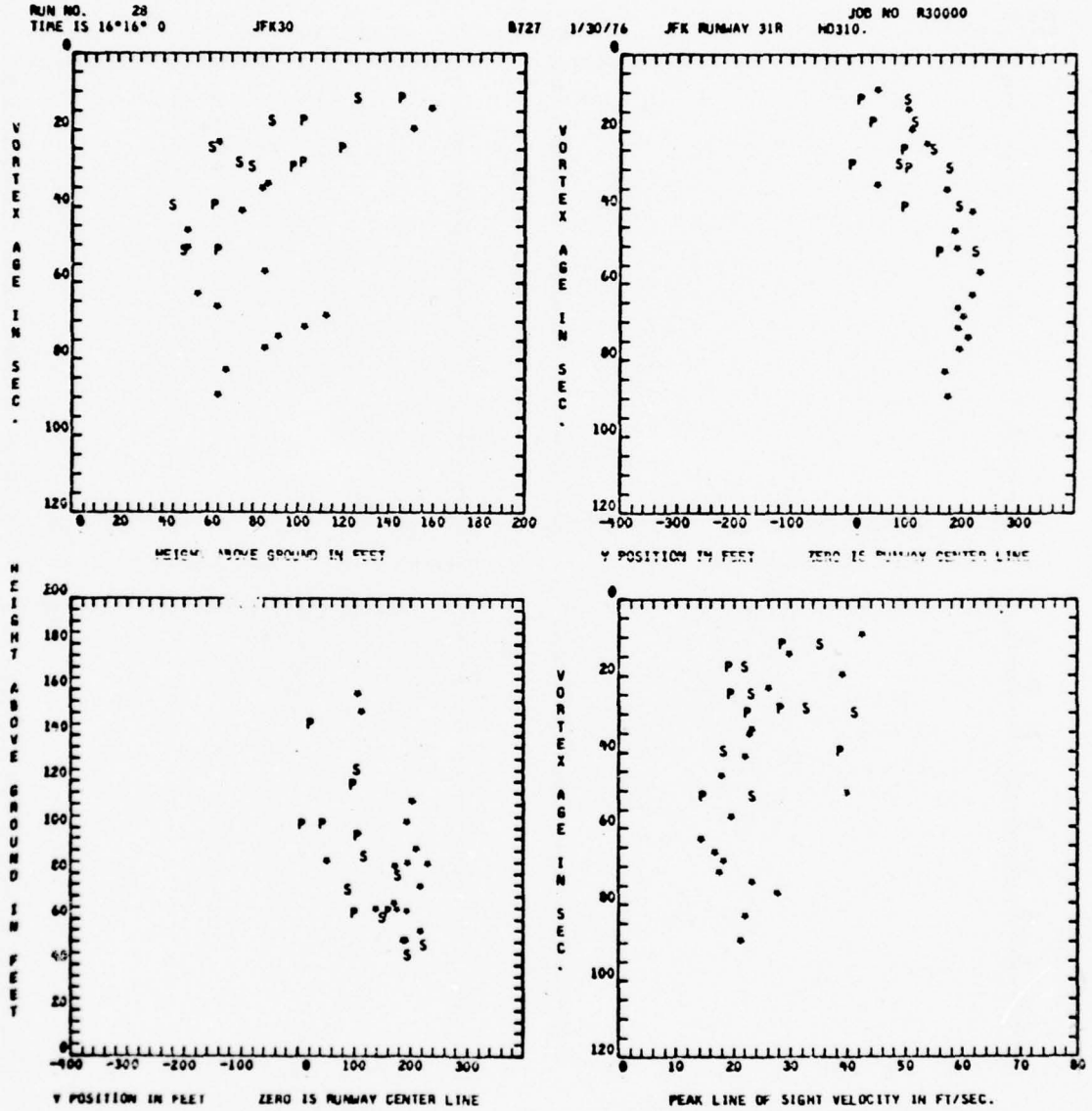

RUN NO. 23
TIME IS 16° 1° 0
JFK30
B727 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

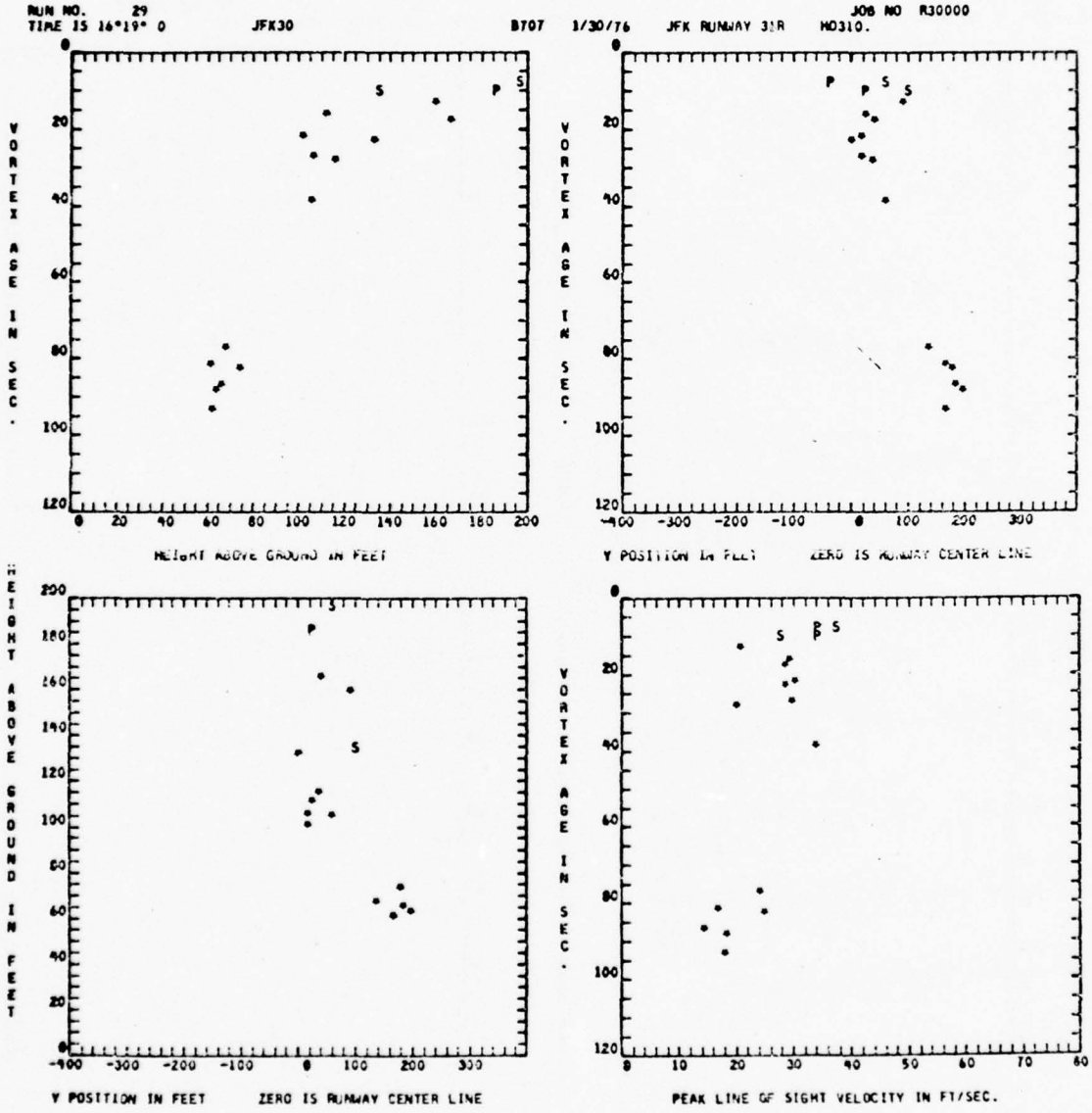

RUN NO. 24
TIME IS 16° 7° 0
JFK30
DC10 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

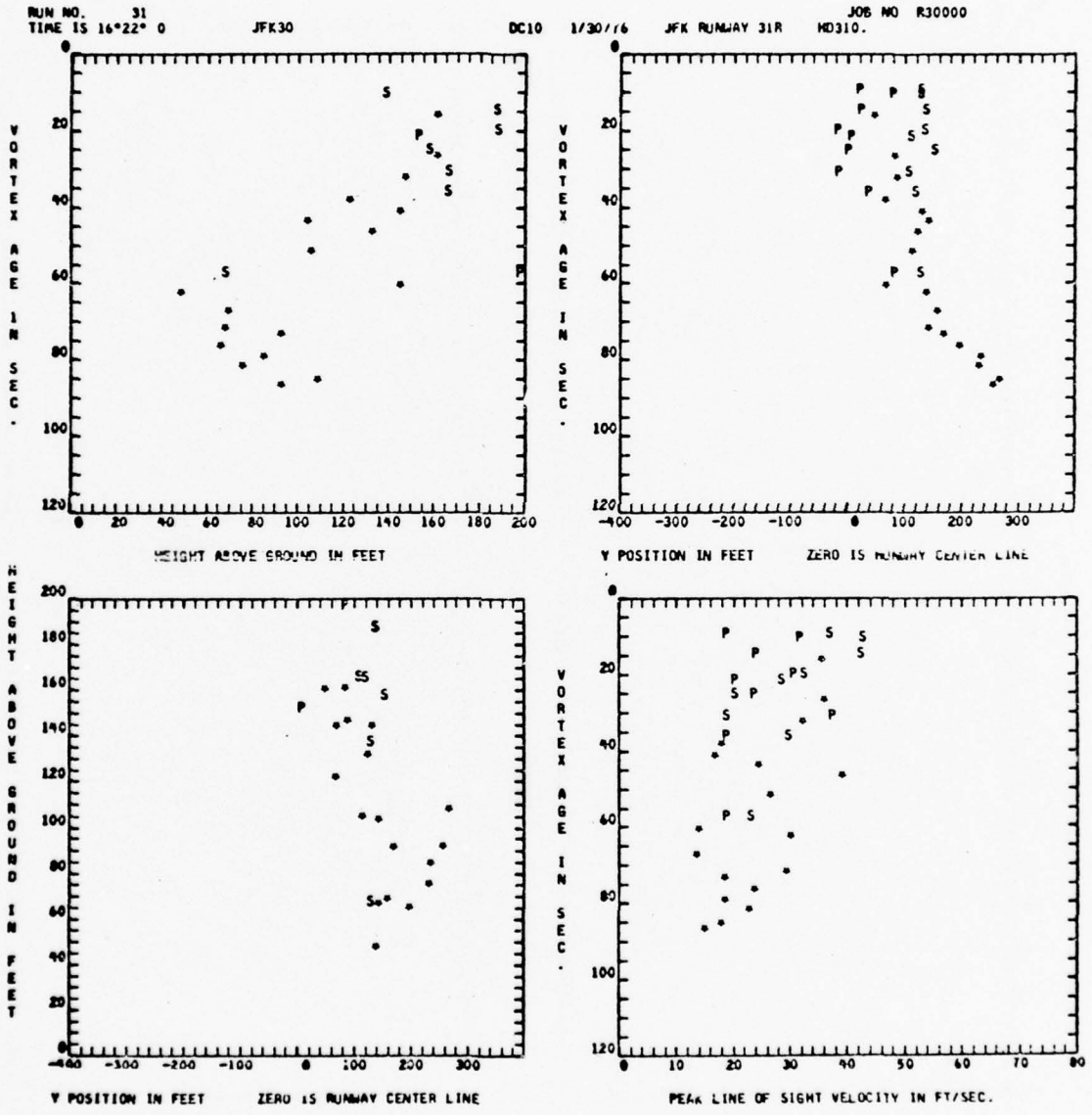

RUN NO. 25
TIME IS 16°10° 0
JFK30
B707 1/30/76 JFK RUNWAY 31R MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

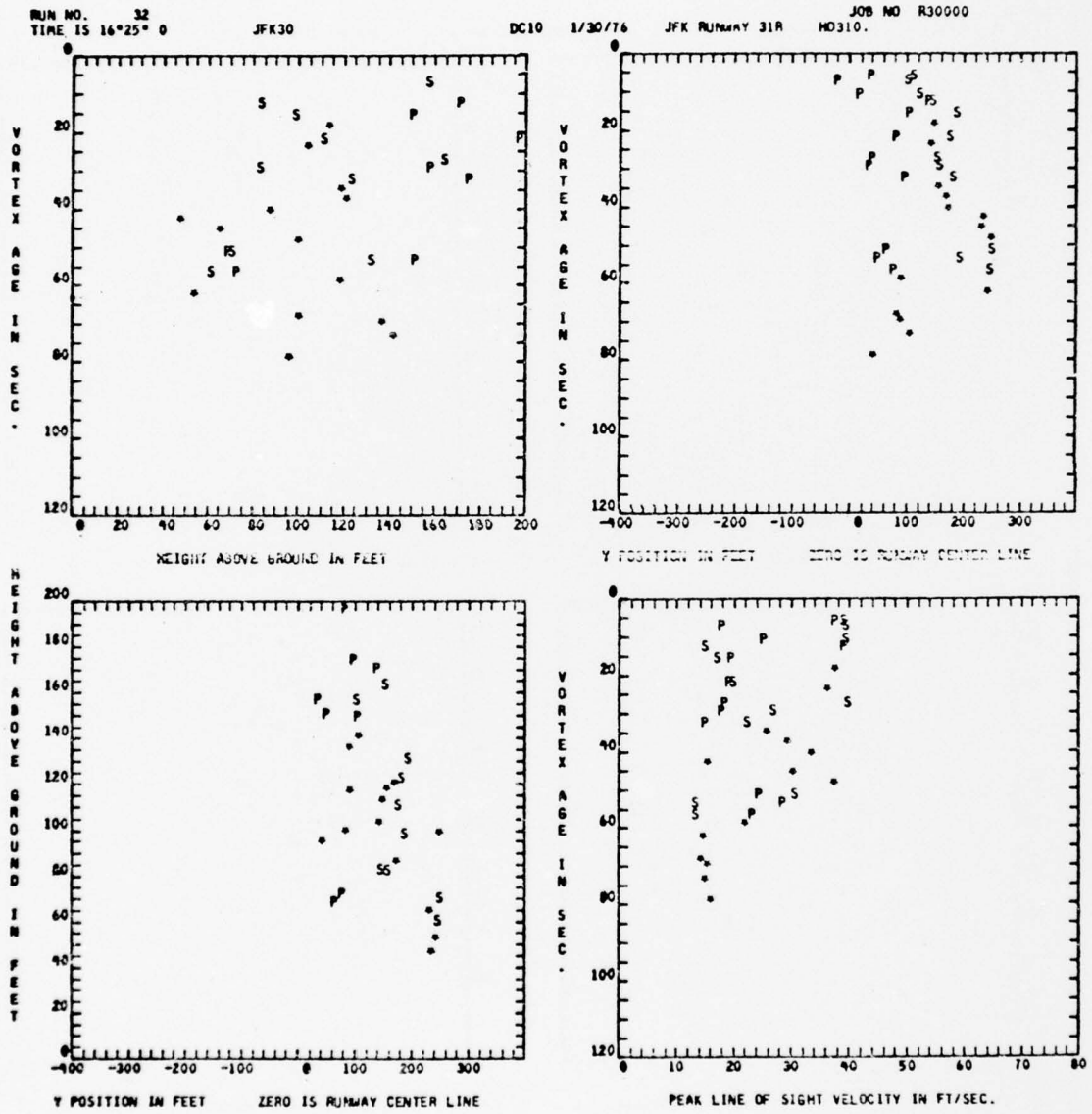

RUN NO. 26
TIME IS 16°12° 0
JFK30
DC9
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

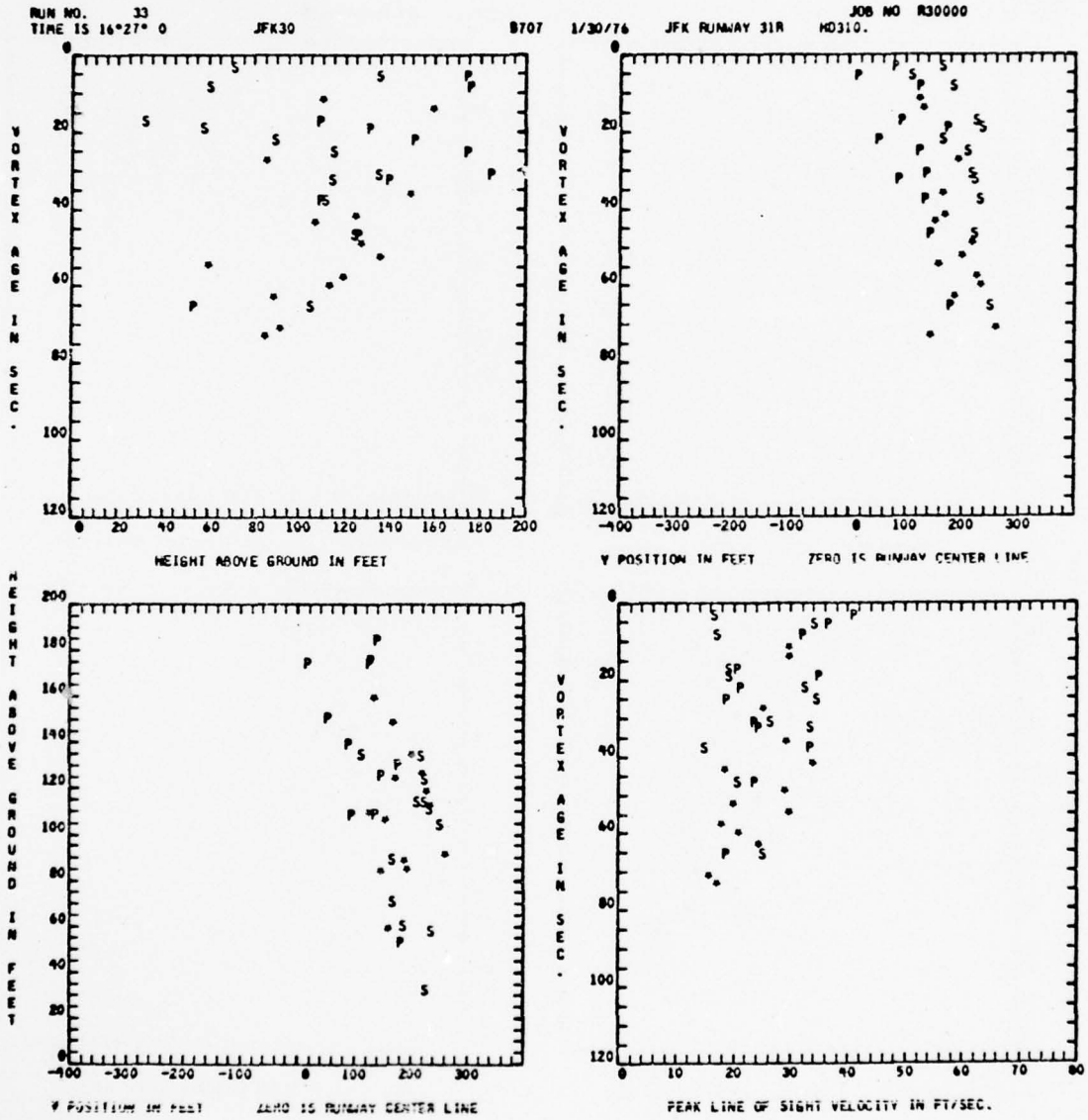

RUN NO. 27
TIME IS 16°19° 0
JFK30
B747
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

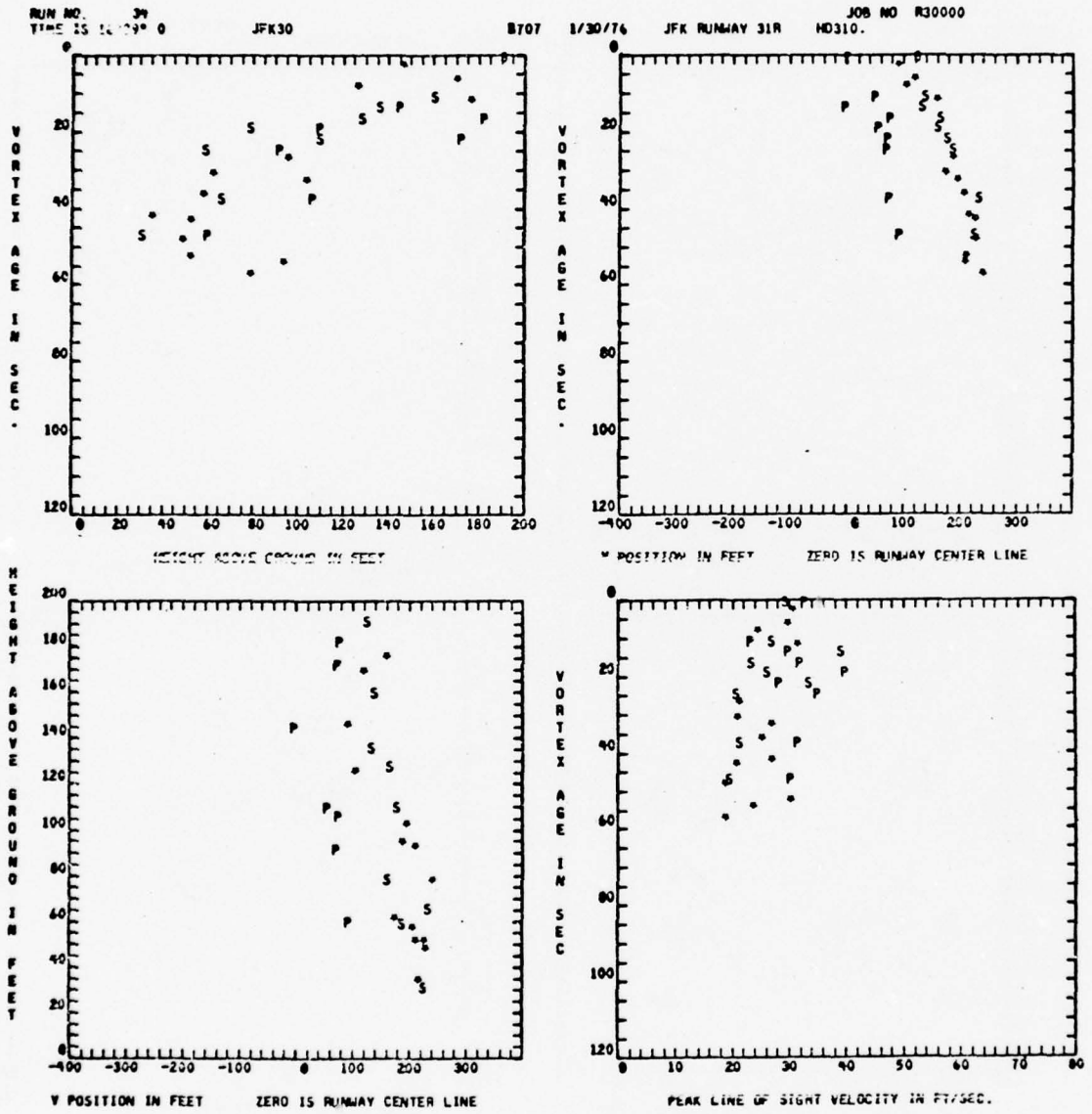

RUN NO. 28
TIME IS 16°16° 0
JFK30
B727 1/30/76 JFK RUNWAY 31R
JOB NO R30000
HD310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

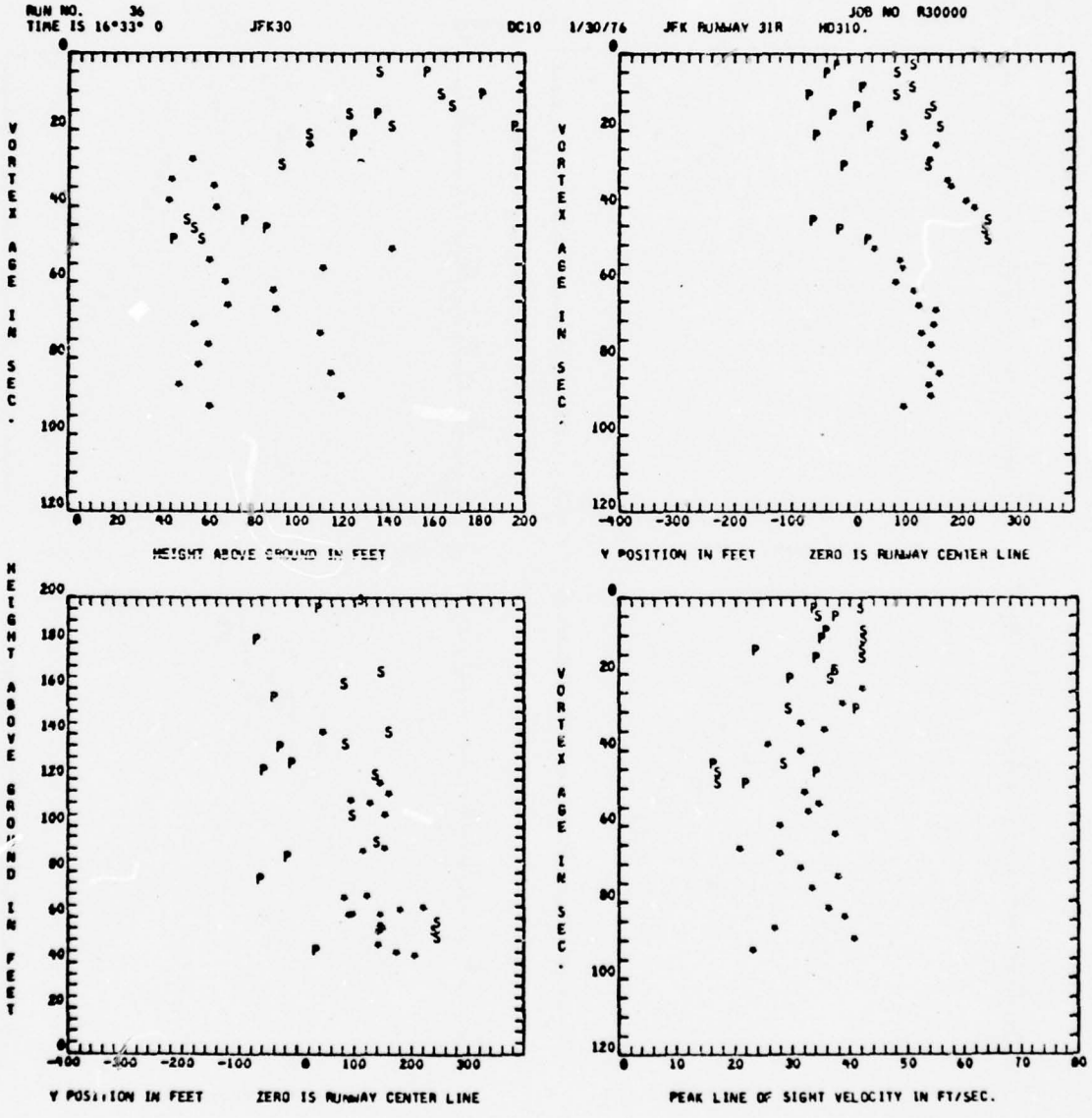

RUN NO. 29
TIME IS 16°19' 0
JFK30
B707 1/30/76 JFK RUNWAY 31R H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

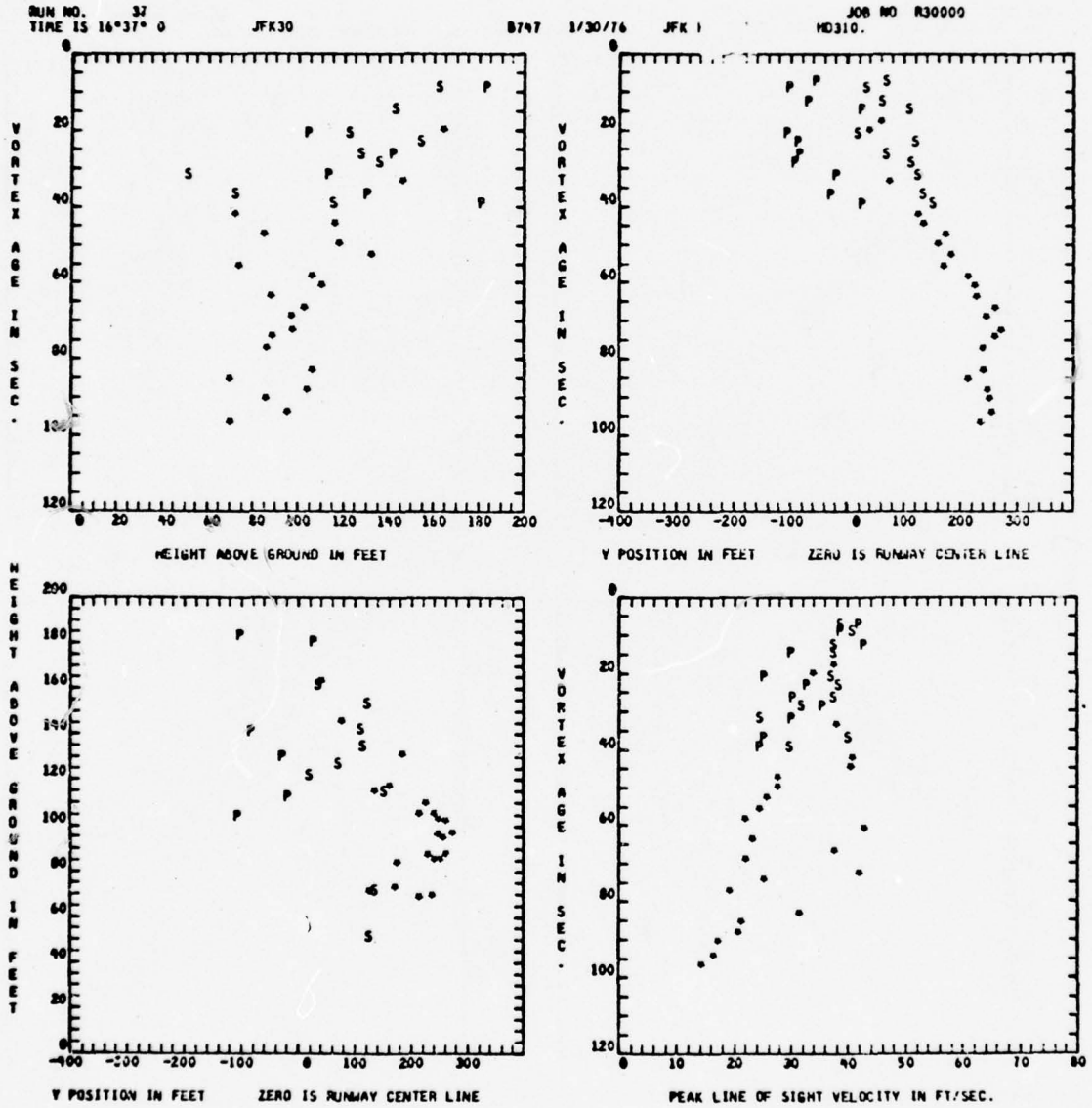

RUN NO. 31
TIME IS 16°22° 0
JFK30
DC10 1/30/76 JFK RUNWAY 31R
JOB NO R30000
MD310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

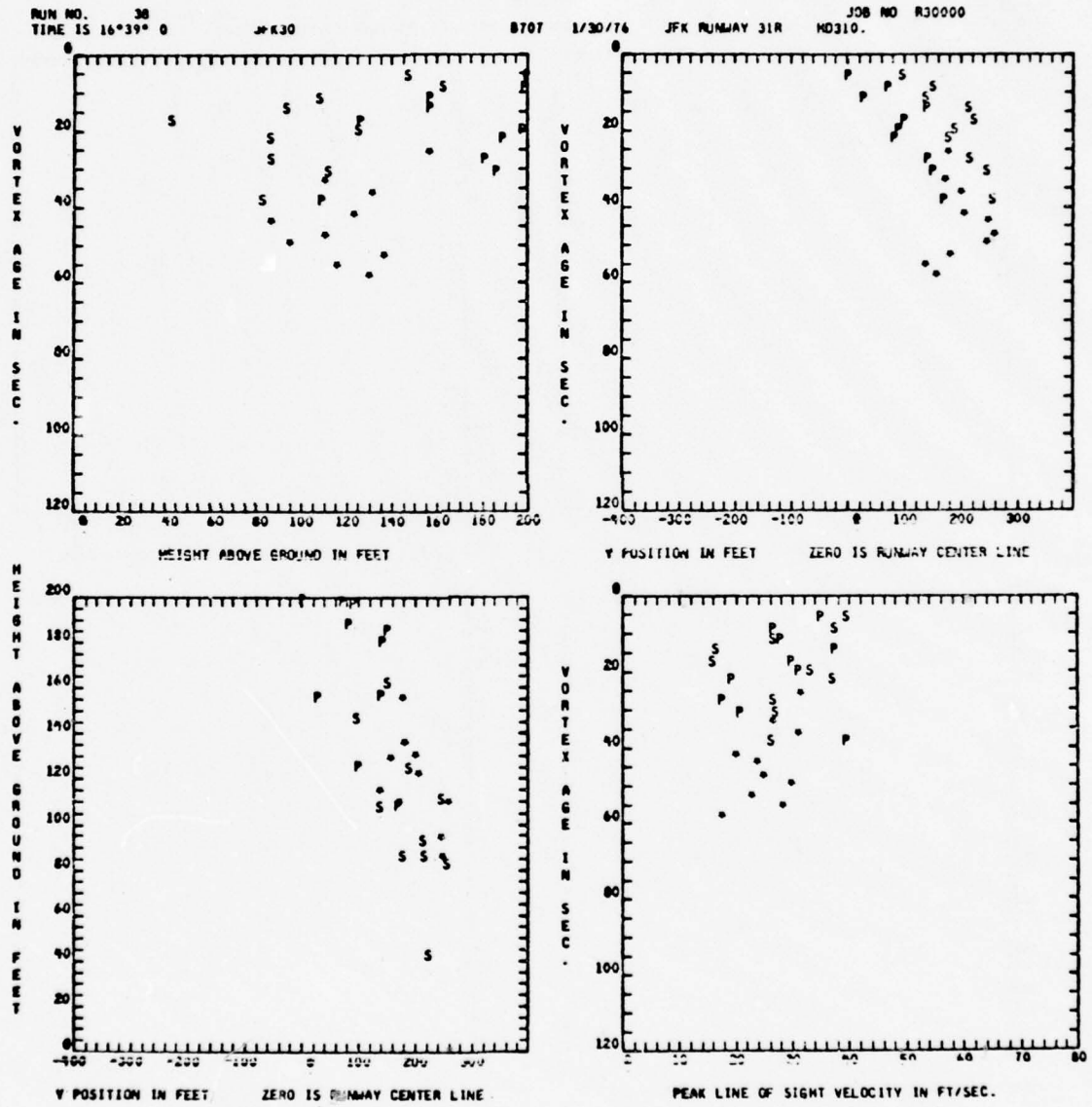

RUN NO. 32
TIME IS 16°25° 0
JFK30
DC10 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
XEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

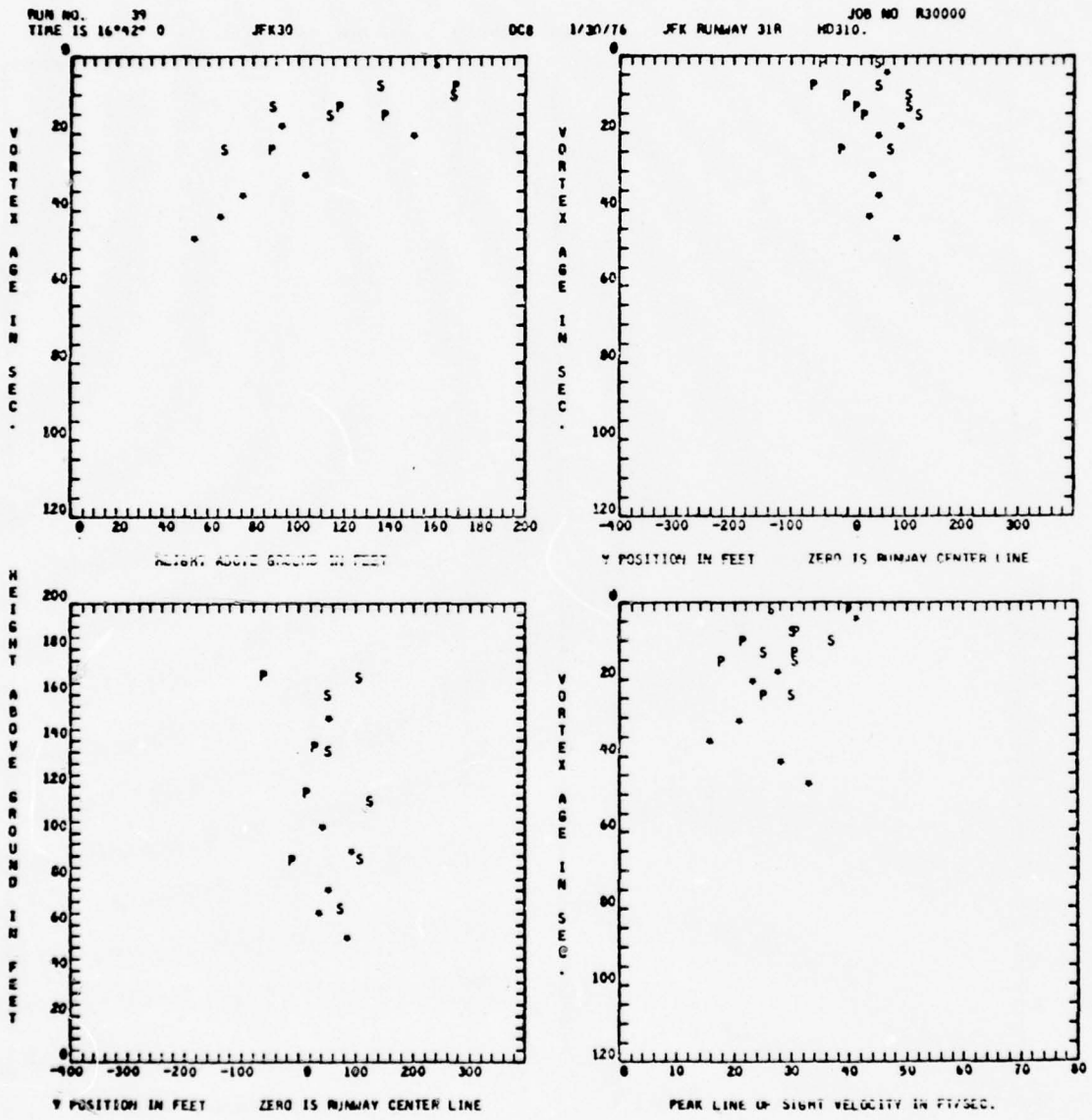

RUN NO. 33
TIME IS 16°27° 0
JFK30
B707
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

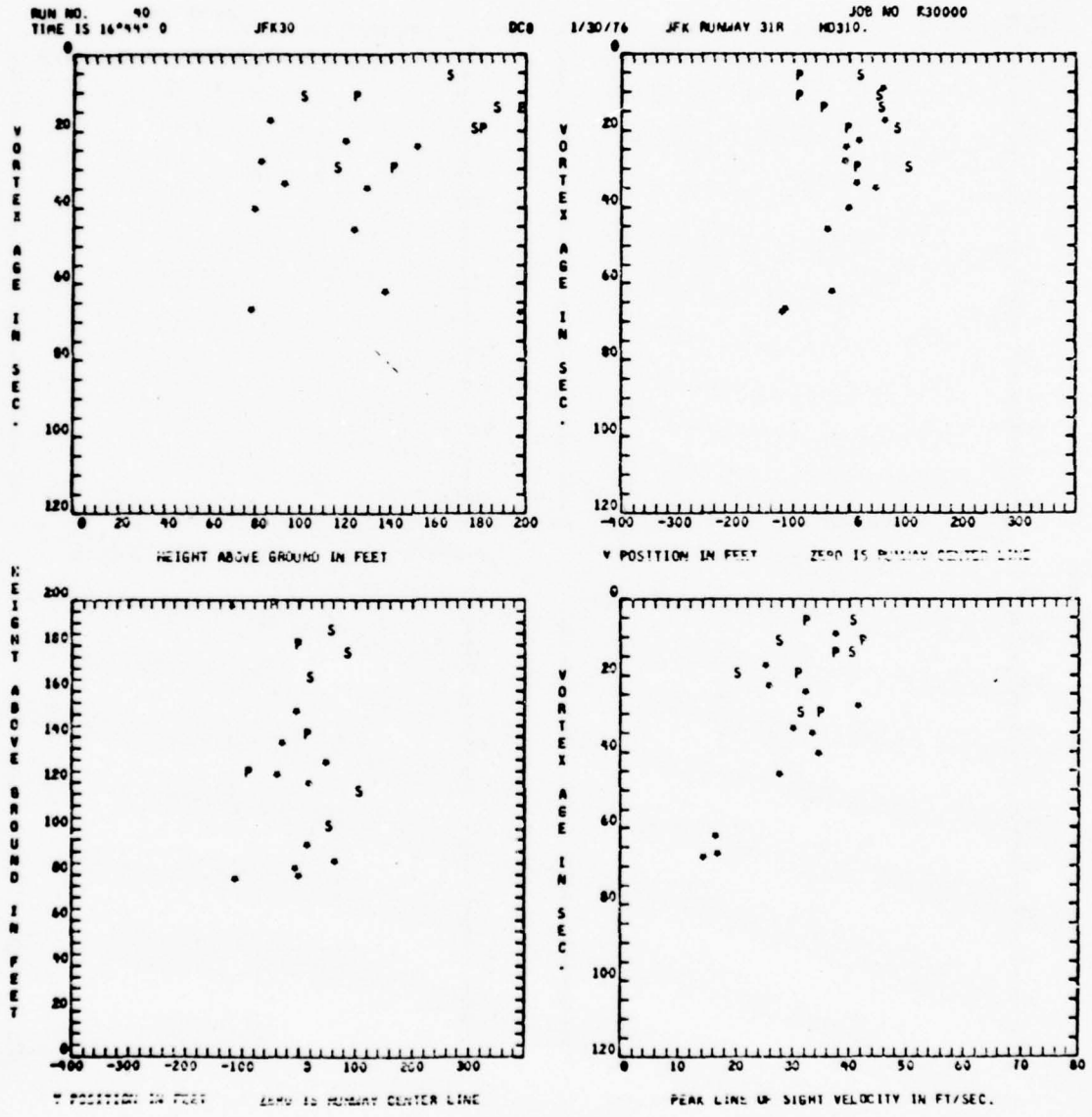

RUN NO. 39
JFK30
B707 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

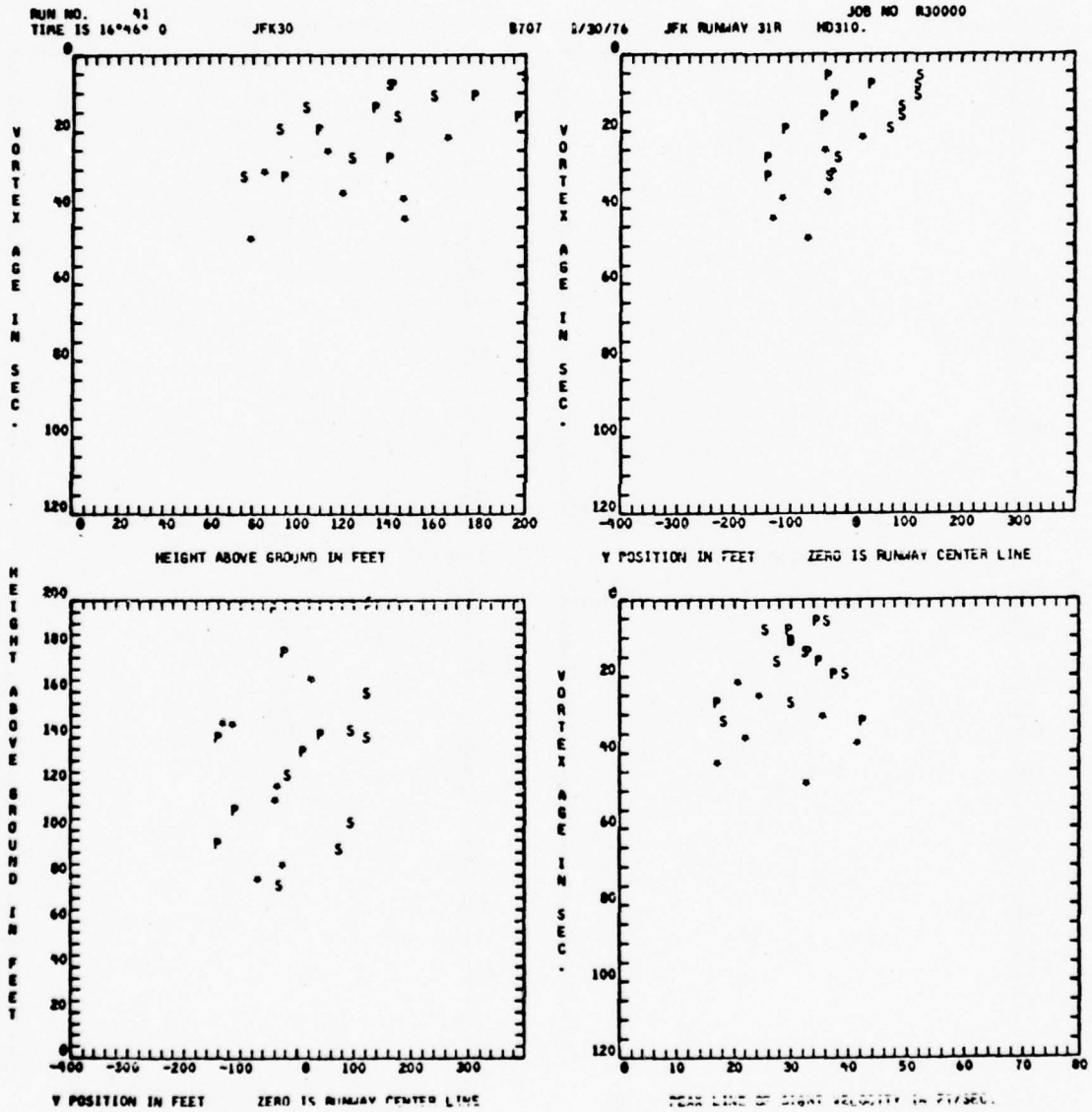

RUN NO. 36
TIME IS 16°33° 0
JFK30
DC10
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

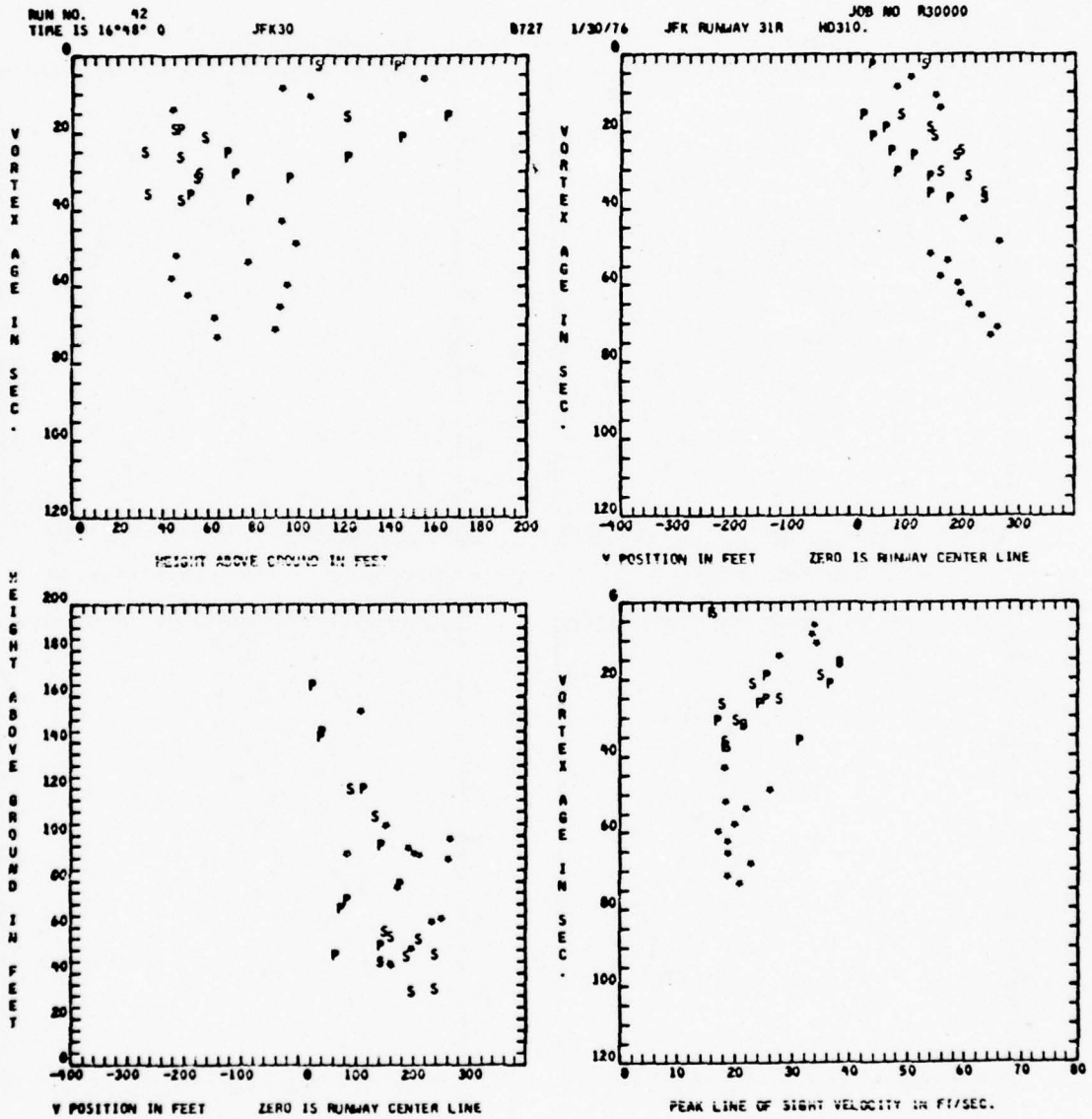

RUN NO. 37
TIME IS 16°37° 0
JFK30
B747
1/30/76
JFK 1
JOB NO R30000
MD310.
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
HEIGHT ABOVE GROUND IN FEET
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
V POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

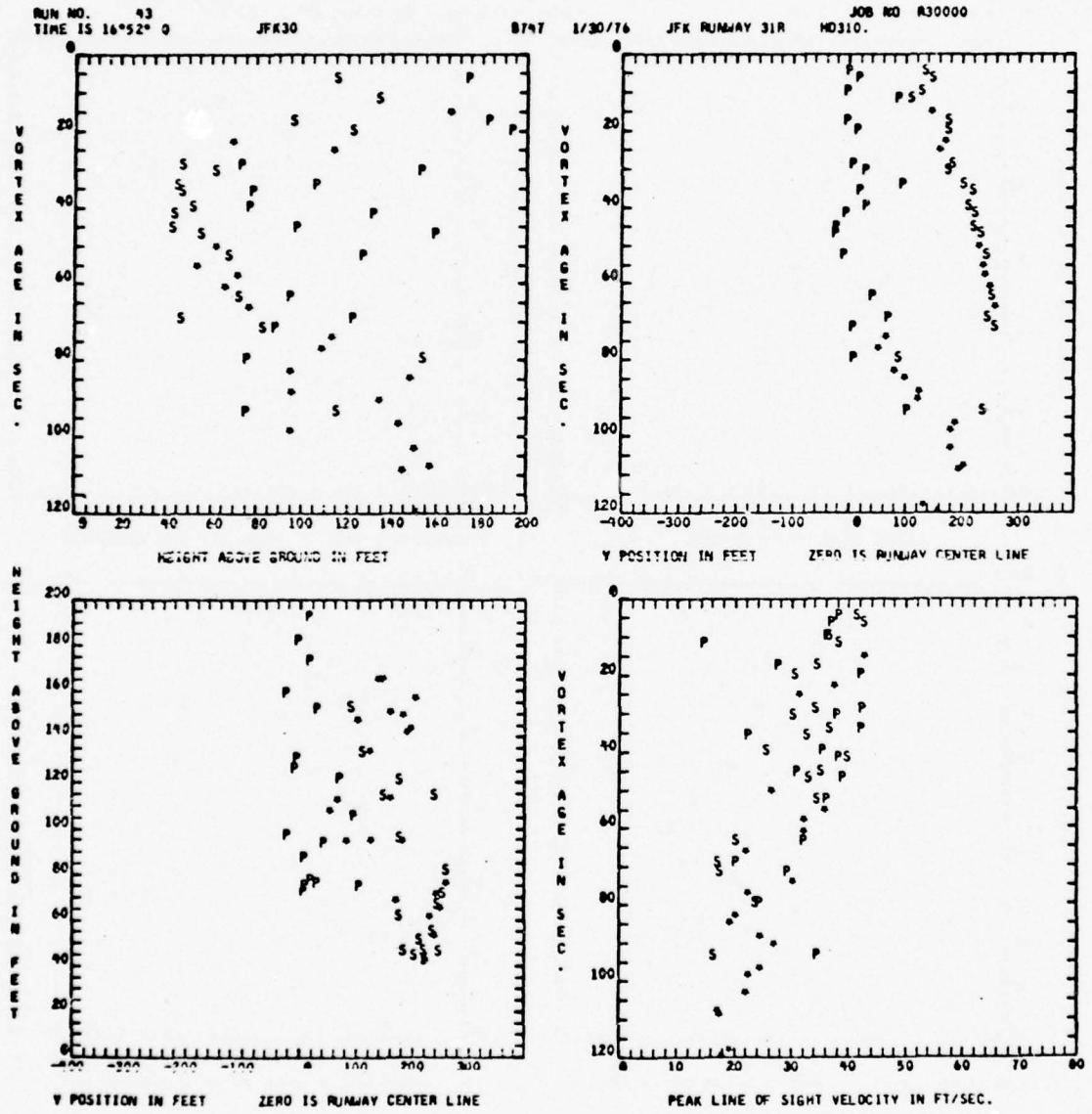

RUN NO. 38
TIME IS 16°39° 0
JFK30
B707 1/30/74 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

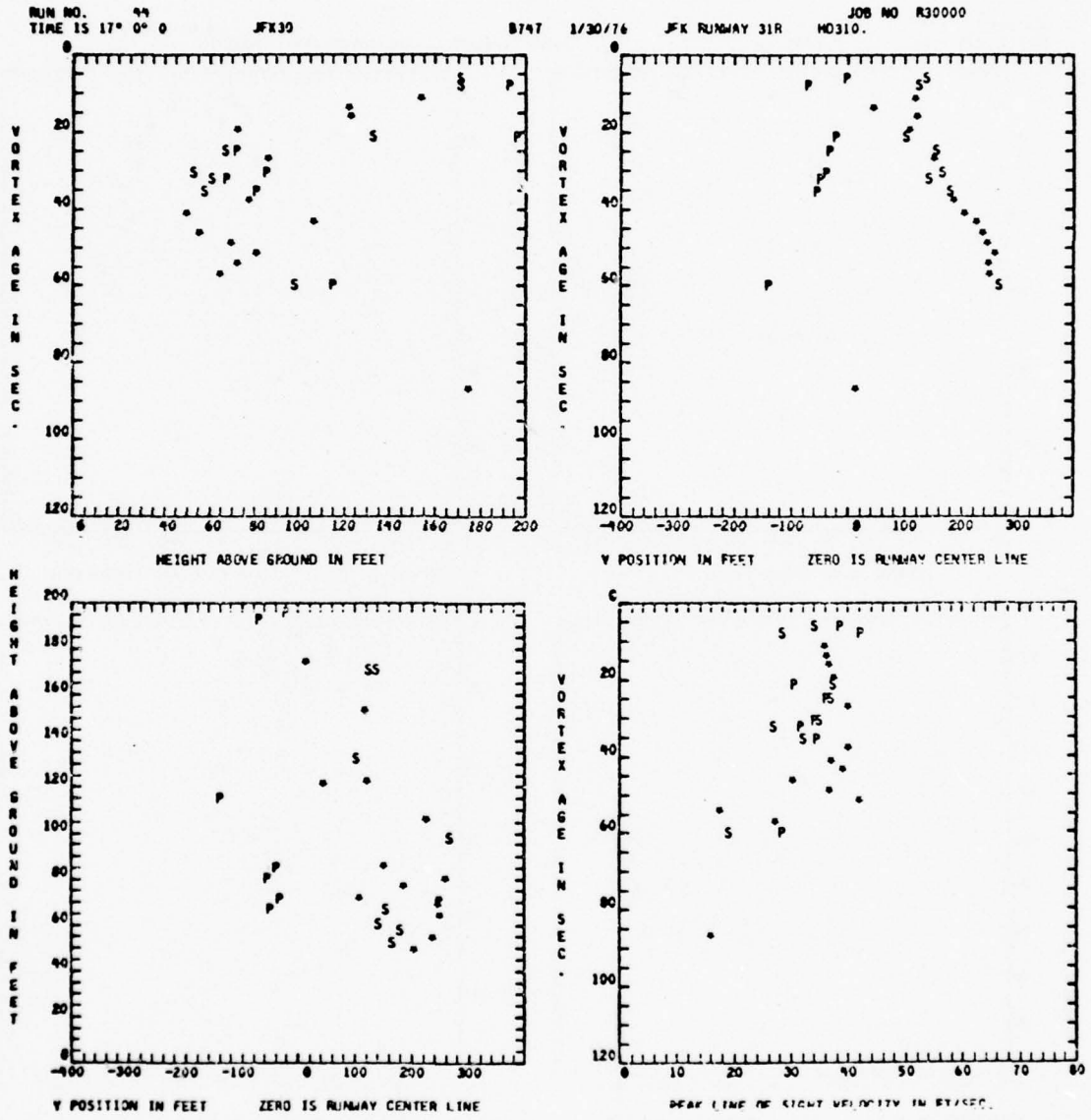

RUN NO. 39
TIRE IS 16°42° 0
JFK30
DC8
1/30/76 JFK RUNWAY 31R HDJ10.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

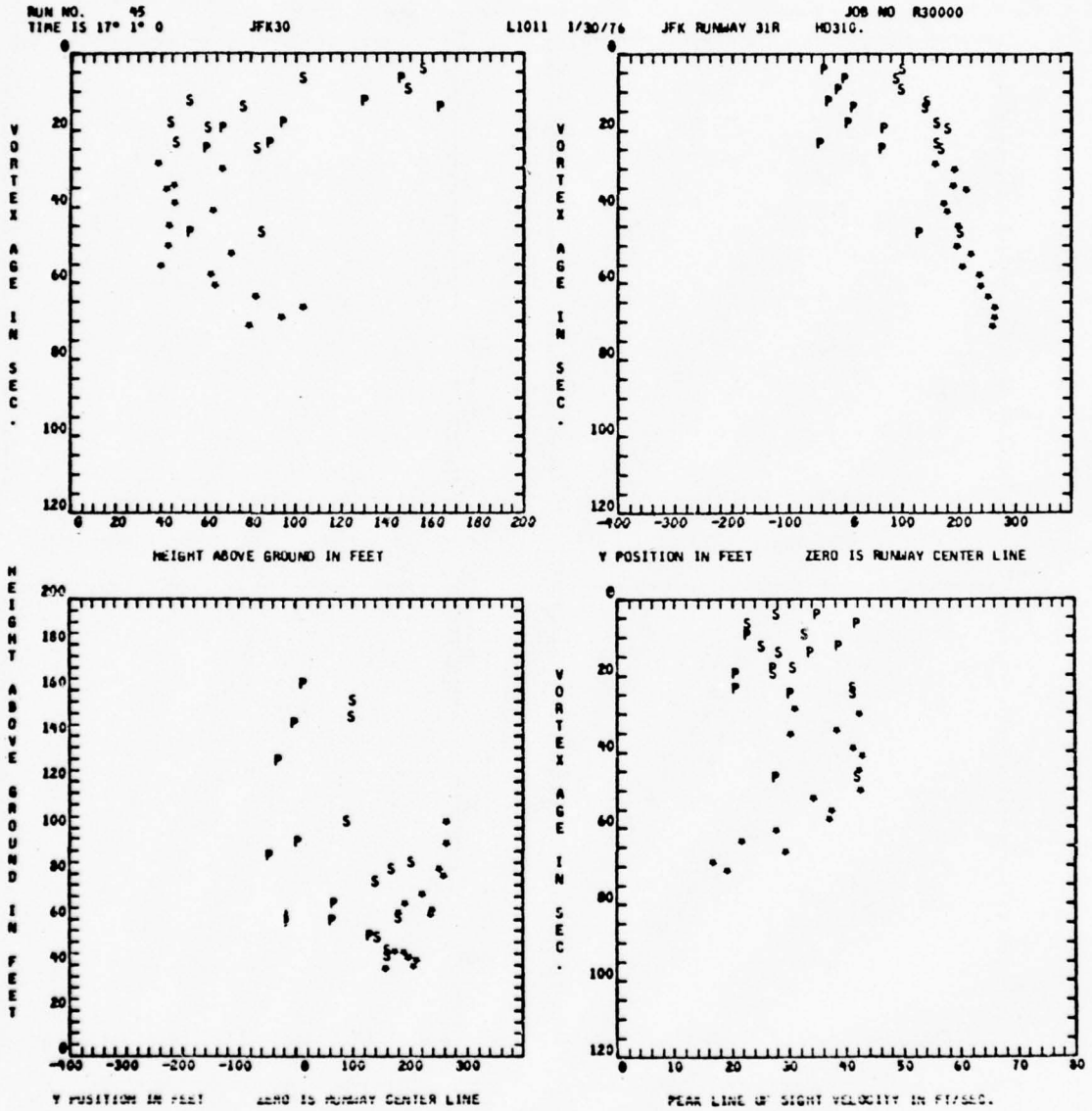

RUN NO. 90
TIME IS 16°99° 0
JFK30
DC8
1/30/76
JFK RUNWAY 31R
MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

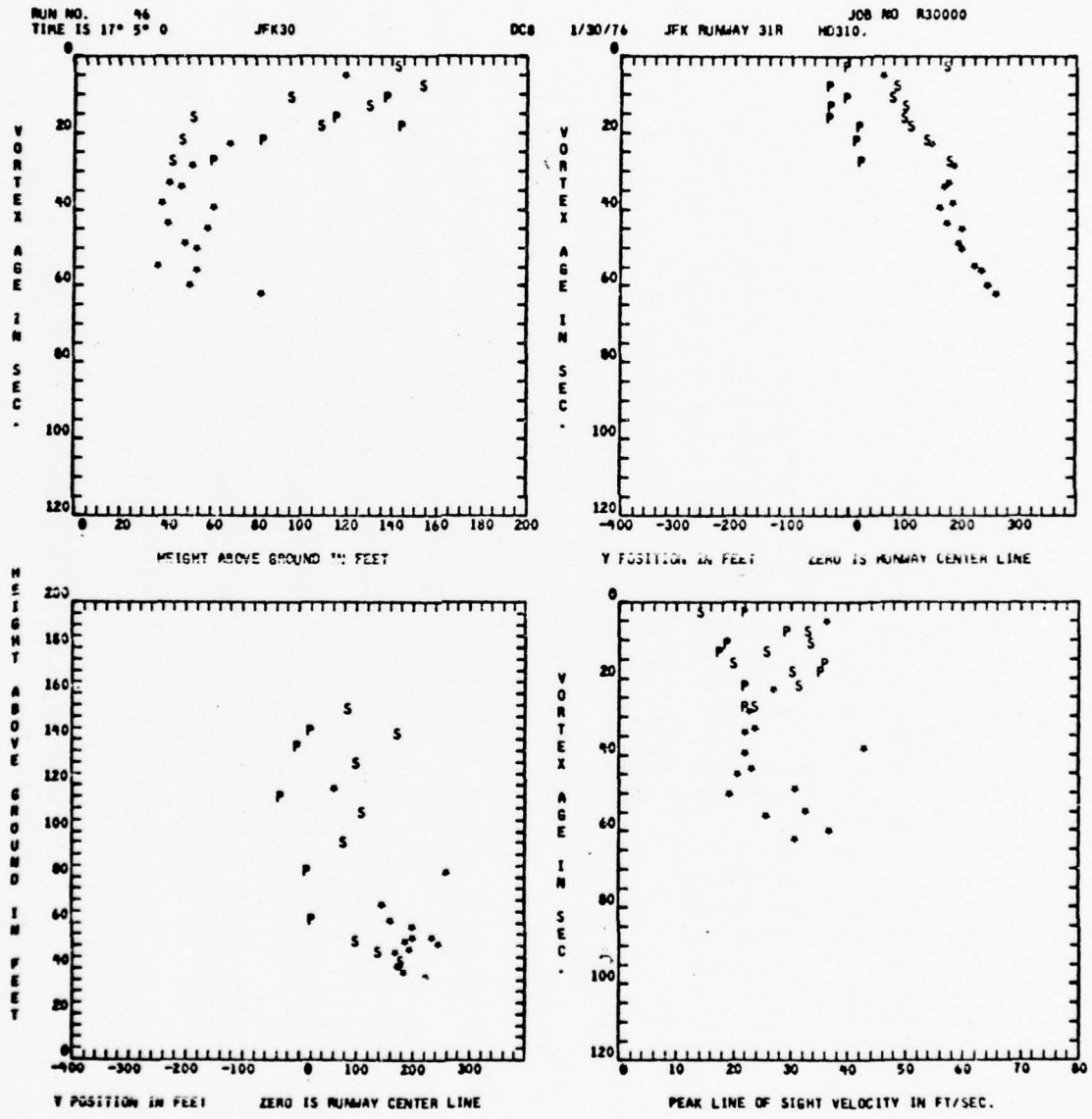

RUN NO. 41
TIME IS 16°46° 0
JFK30
B707
1/30/76
JFK RUNWAY 31R
MD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE


RUN NO. 42
TIME IS 16°48' 0
JFK30
B727
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 43
TIME IS 16°52° 0
JFK30
B747 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


RUN NO. 99
TIME IS 17° 0° 0
JFK30
B747
1/30/76
JFK RUNWAY 31R
HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

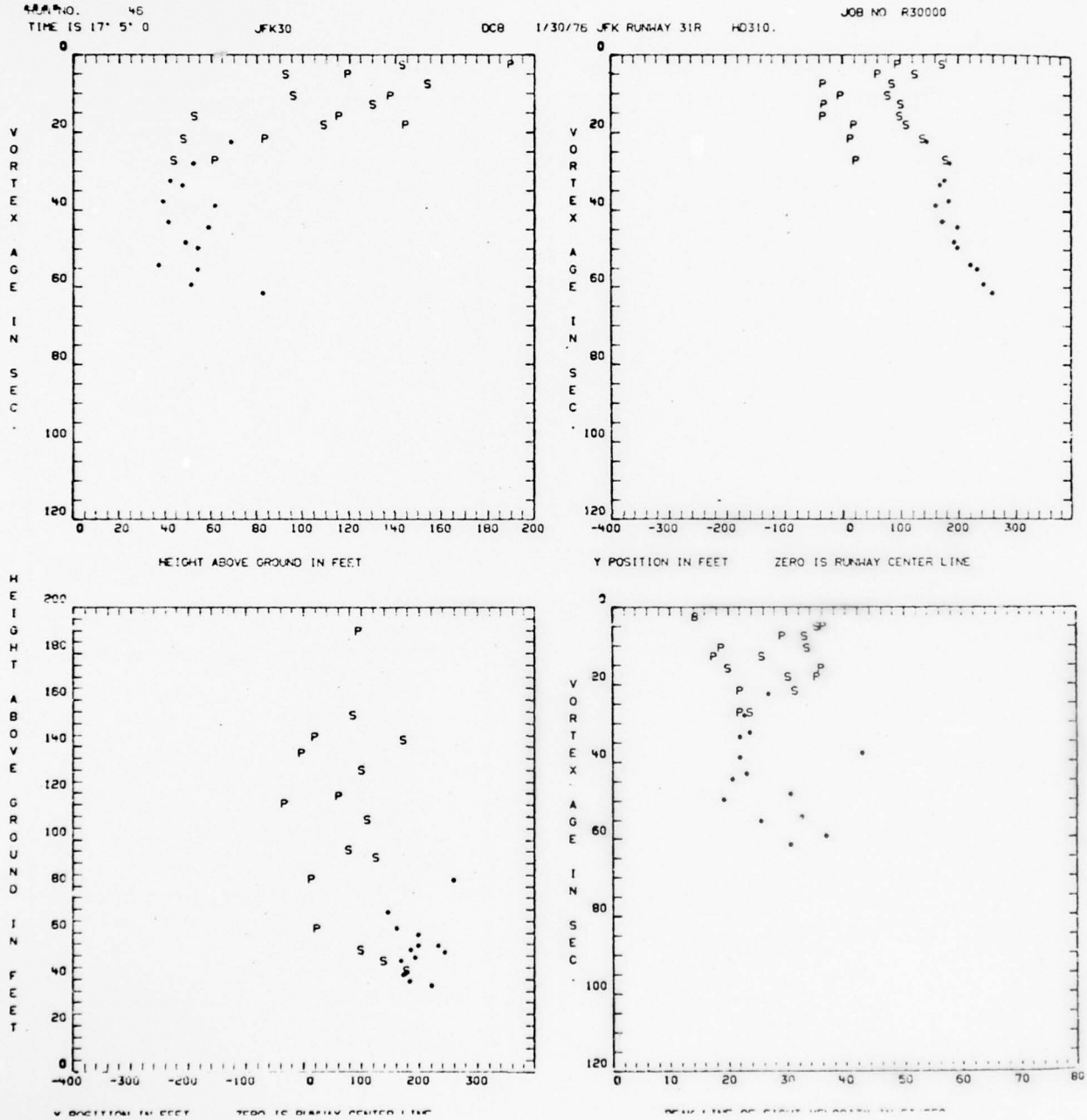

RUN NO. 95
TIME IS 17° 1° 0
JFK30
L1011 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

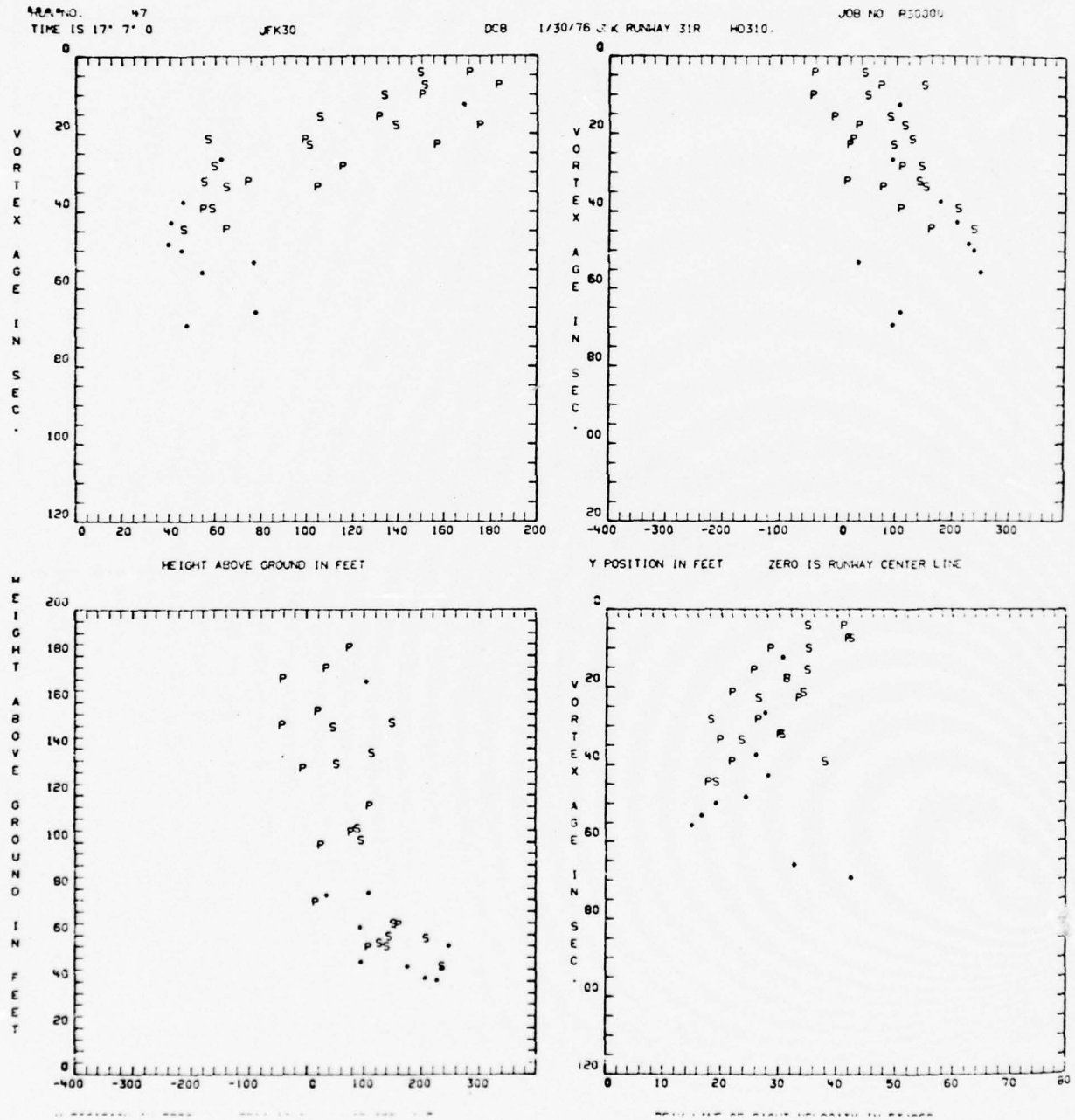

RUN NO. 96
TIRE IS 17° 5° 0
JFK30
DC8
1/30/76
JFK RUNWAY 31R
HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

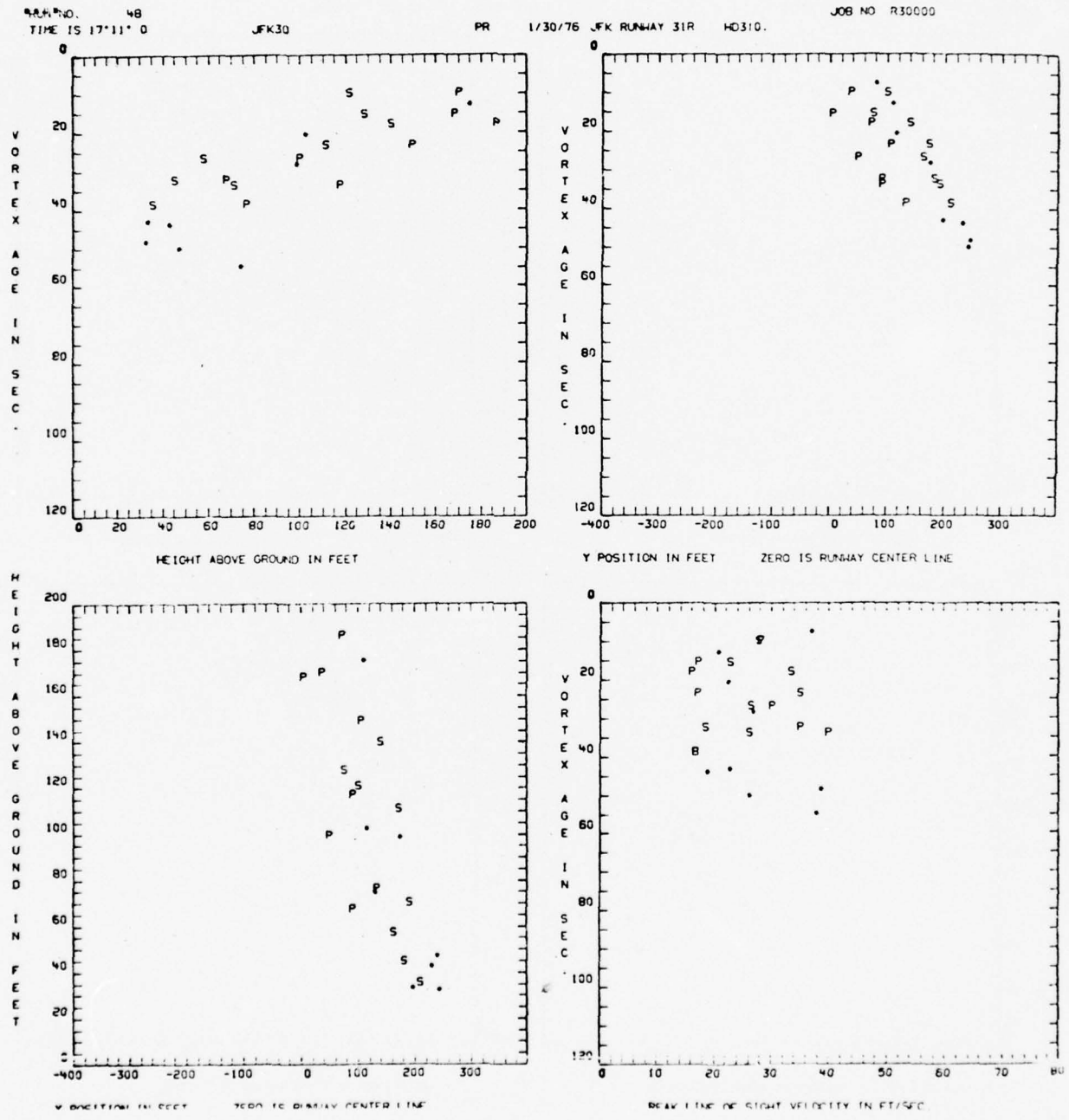
JFK30

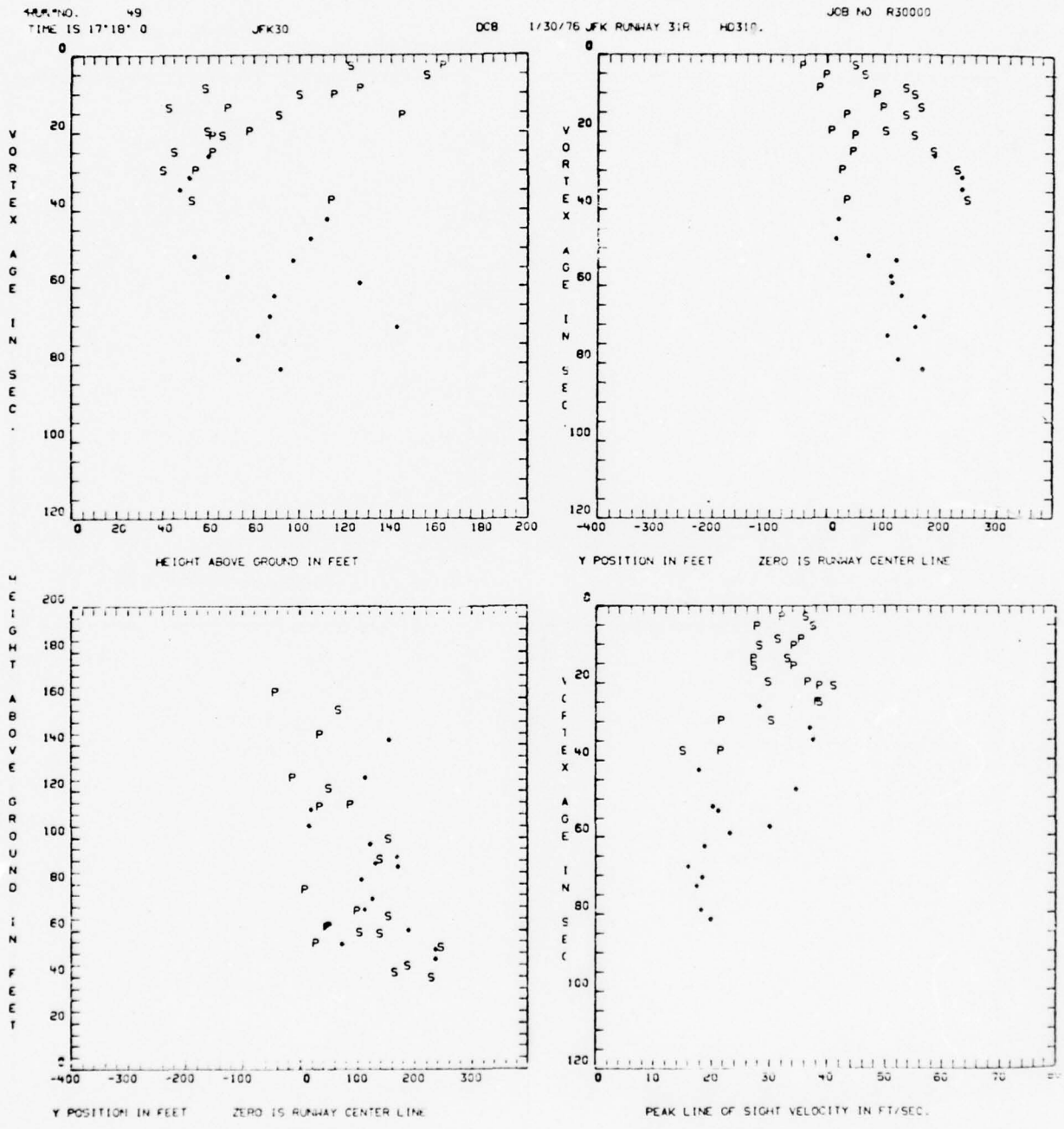
```
$DATA
IGROUP =          +0
ISFILE =          +1.          +45.         +1000.         +1000.
                +1000.         +1000.       +1000.         +1000.
                +1000.         +1000.       +1000.         +1000.
                +1000.         +1000.       +1000.         +1000.
                +1000.         +1000.       +1000.         +1000
NRUN   =         +12
ZLASER =  .70000000E+01
ZLASCN =  .00000000E+00
INTVEL =          +2
NPSUF  =          +4
APERCT =  .10000000E+00
BPERCT =  .10000000E+00
CPERCT =  .50000000E+00
RPERCT =  .31415927E+00
EPERCT =  .15000000E+01
NOISEF =          +0
ADJI   =  .00000000E+00
ANGSW  =  .00000000E+00
WANGLE =  .00000000E+00
WINDHT =  .60000000E+03
LFLIP  =          +3
ISINE  =          +2
EDIT   =  .20000000E+00
MOVAVE =          +5
YLIM   =  .00000000E+00,  .00000000E+00
ZLIM   =  .00000000E+00,  .00000000E+00
ISCALE =          +1
YR     =  .40000000E+03
YL     = -.40000000E+03
ZT     =  .20000000E+03
TMAX   =  .12000000E+03
VMAX   =  .80000000E+02
NSPLT  =         +12
JPROF  =          +1
IMULT  =          +0
IOP1   =          +2
IOP2   =          +2
IOP3   =          +2
IOP4   =          +1

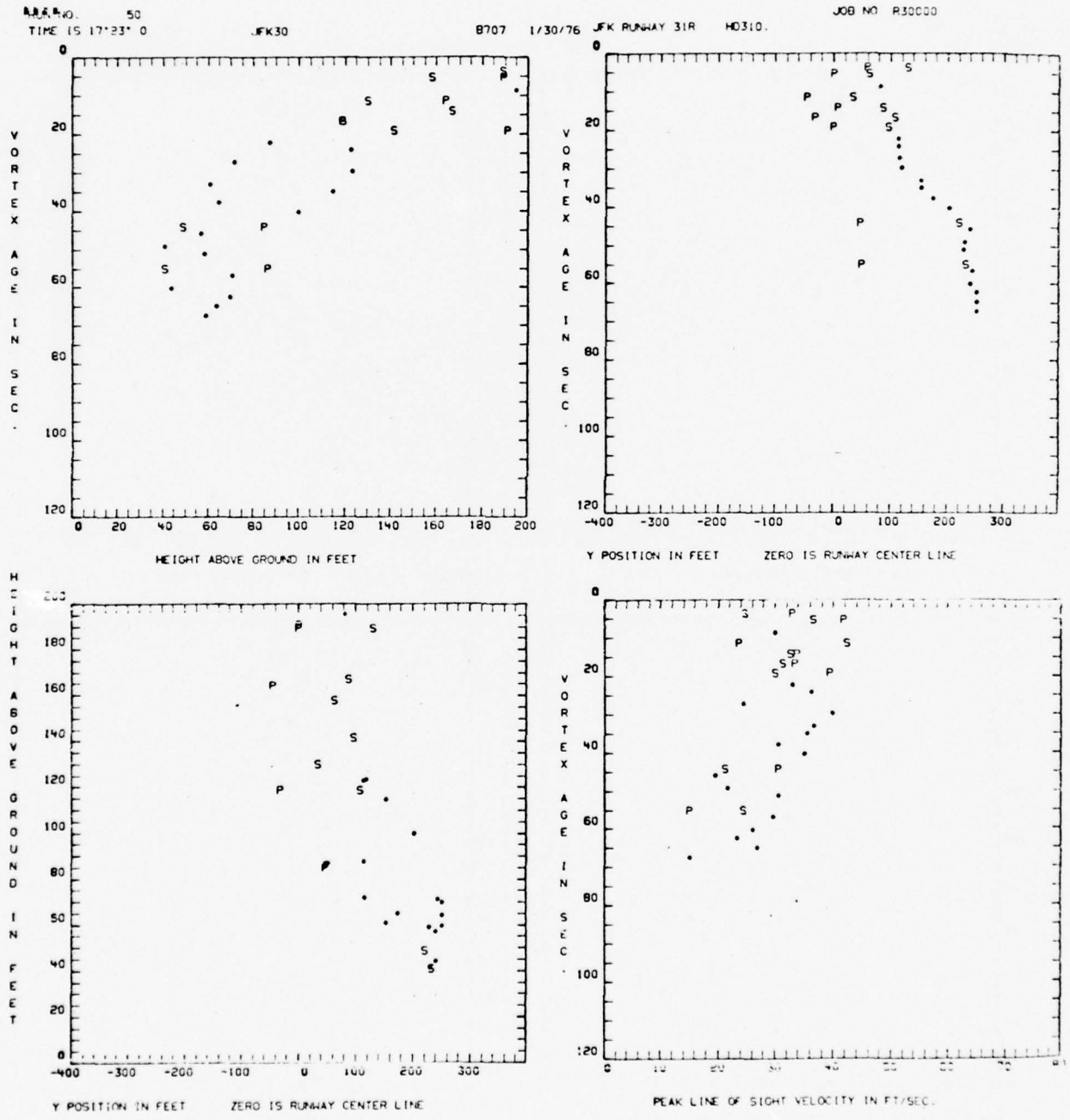
$END
```

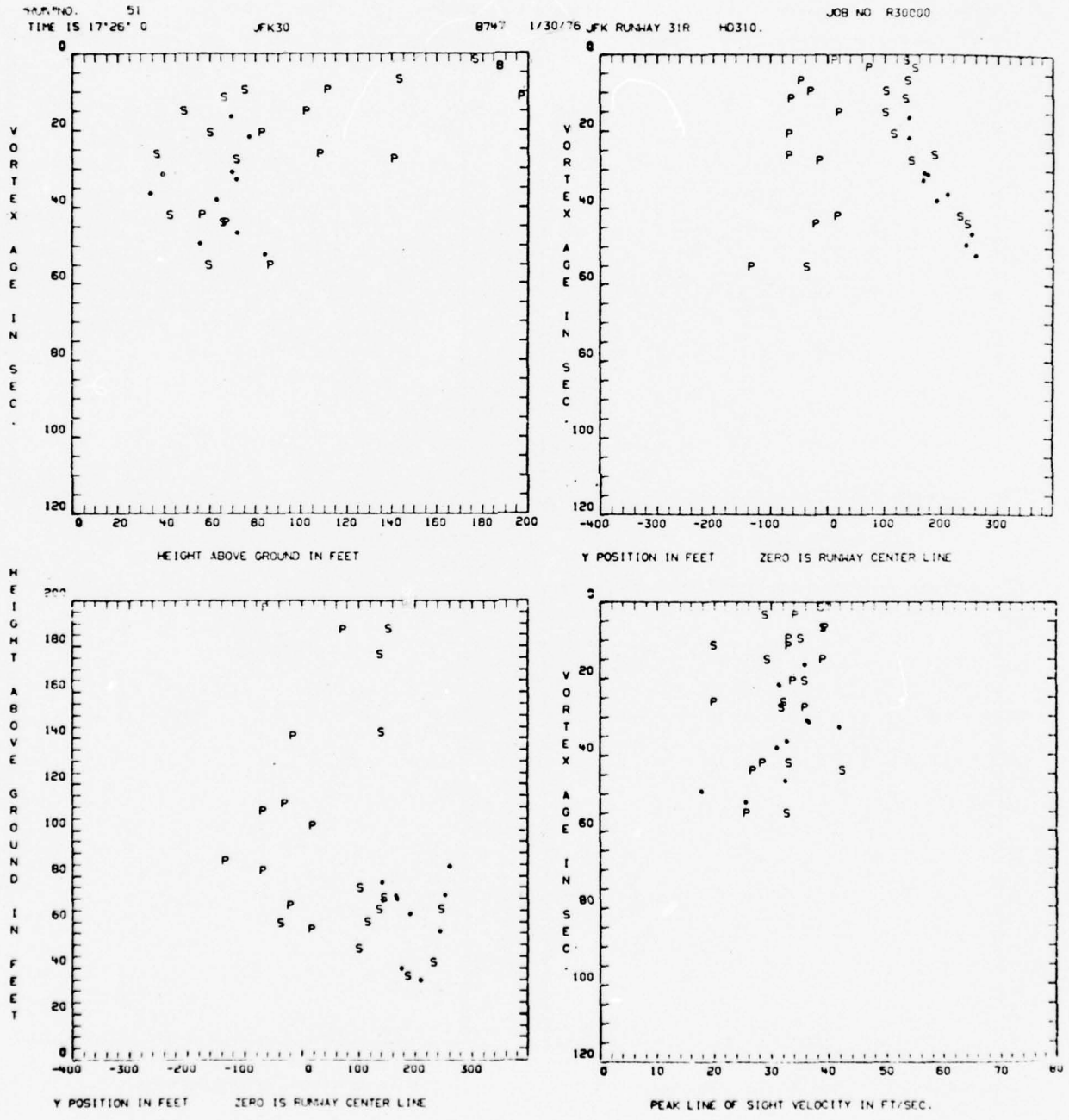

RUN NO. 46
TIME IS 17' 5' 0
JFK30
DC8 1/30/76 JFK RUNWAY 31R H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE

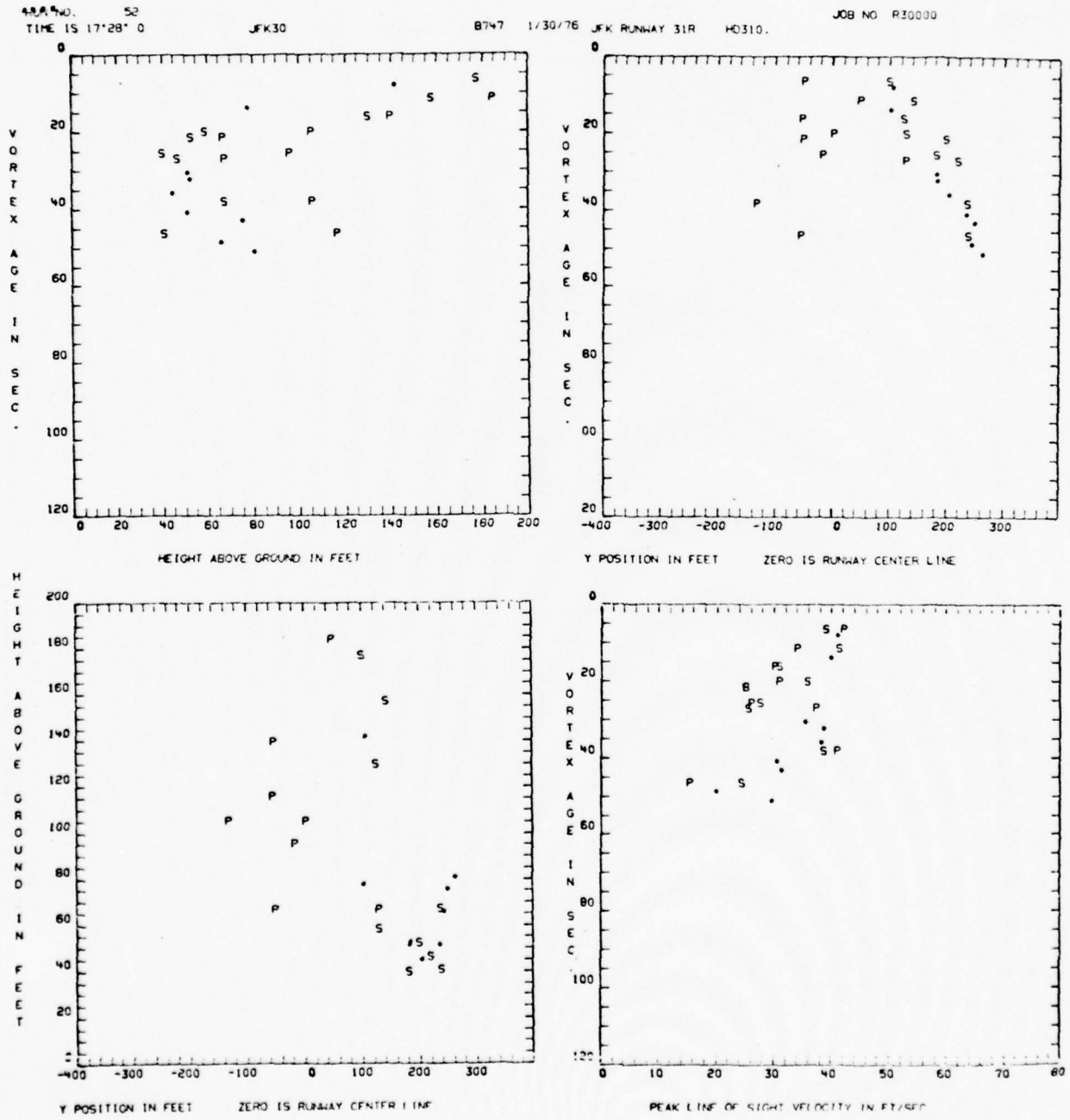

TIME IS 17' 7' 0
JFK30
DC8
1/30/76 J K RUNWAY 31R
HO310.
JOB NO
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
VORTEX AGE IN SEC.

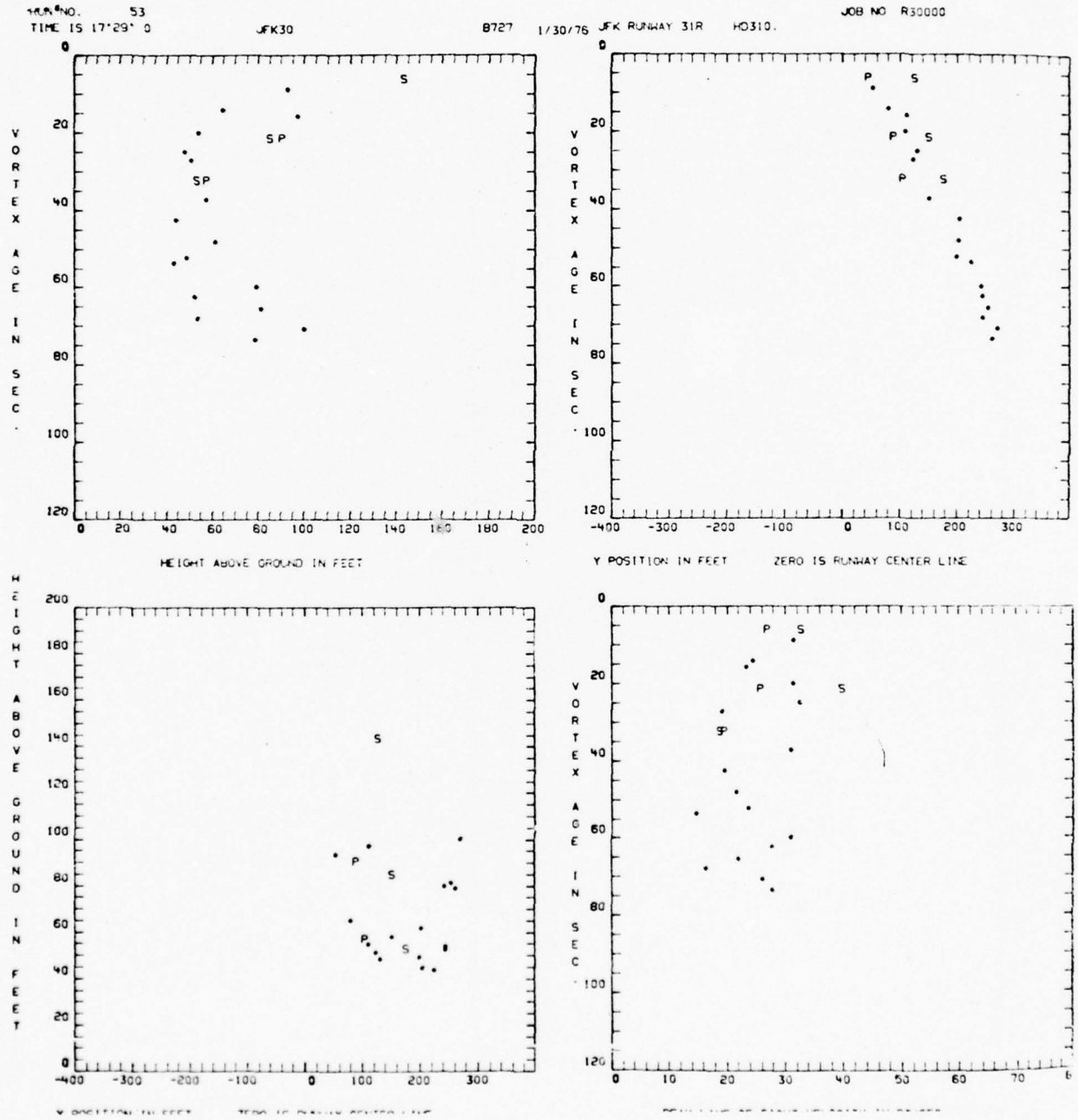

RUN NO. 48
TIME IS 17*11* 0
JFK30
PR 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
RELATIVE LINE OF SIGHT VELOCITY IN FT/SEC

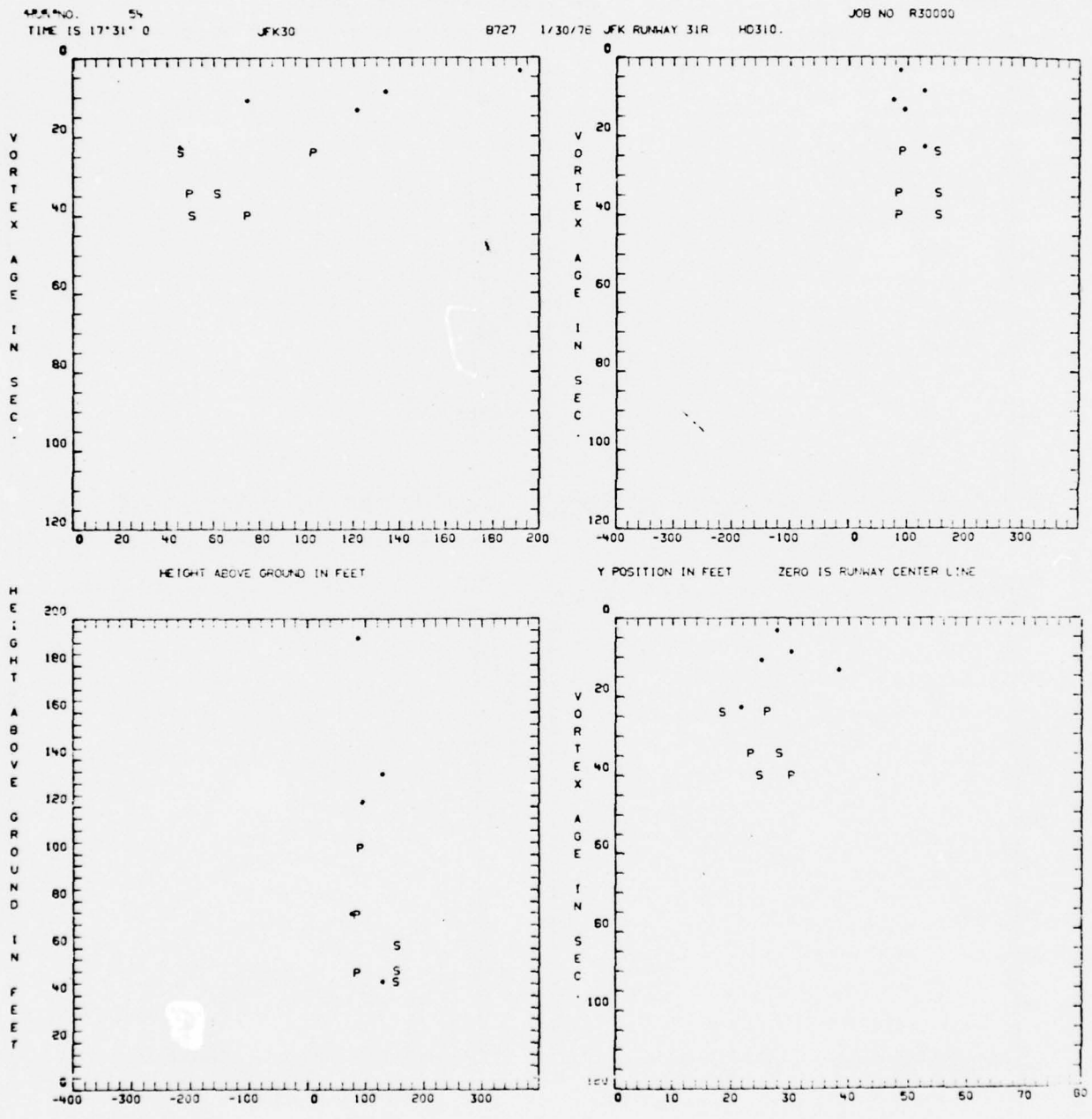

RUN NO. 49
TIME IS 17*18* 0
JFK30
DC8
1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

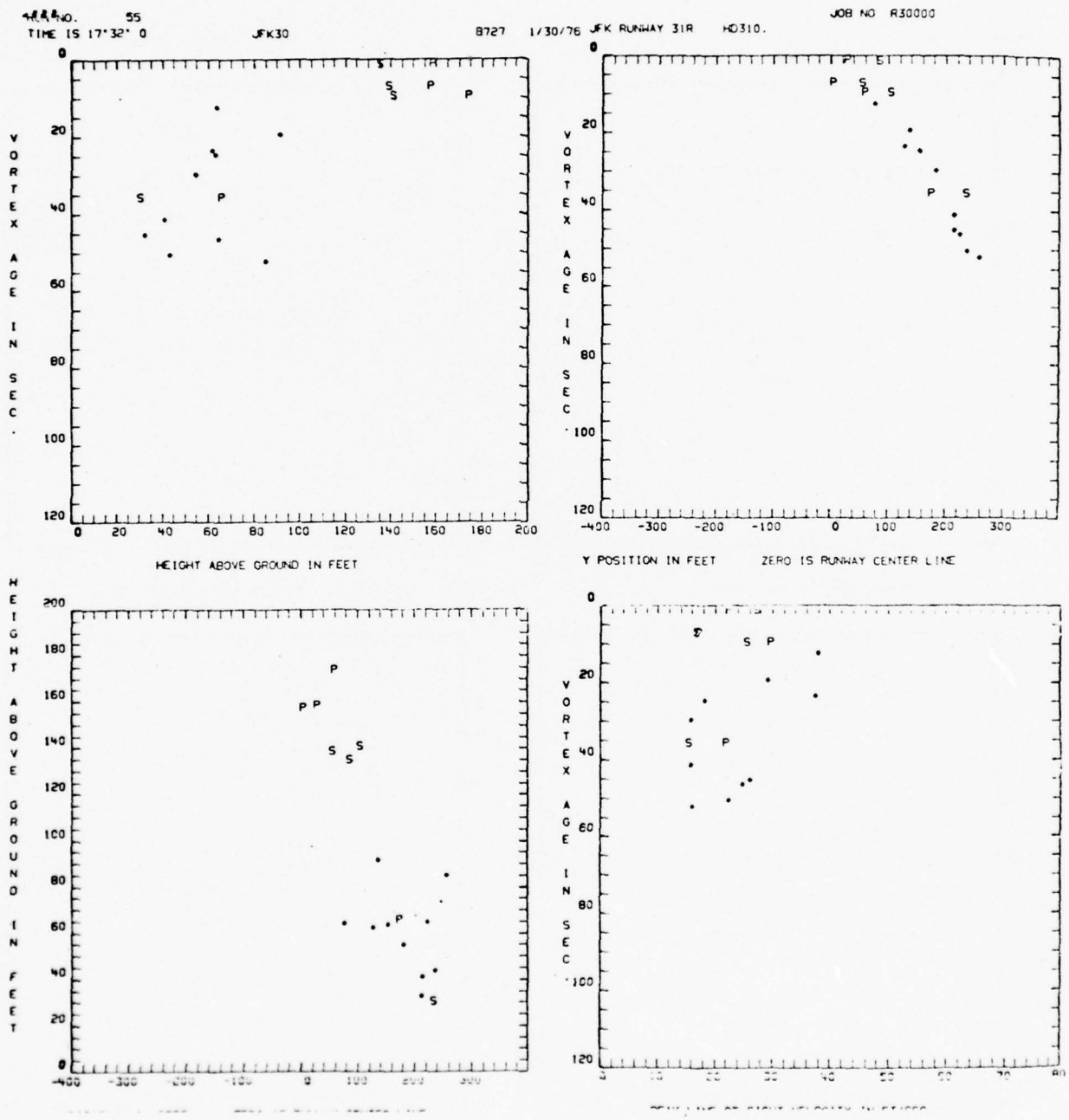

RUN NO. 50
TIME IS 17:23: 0
JFK30
B707 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

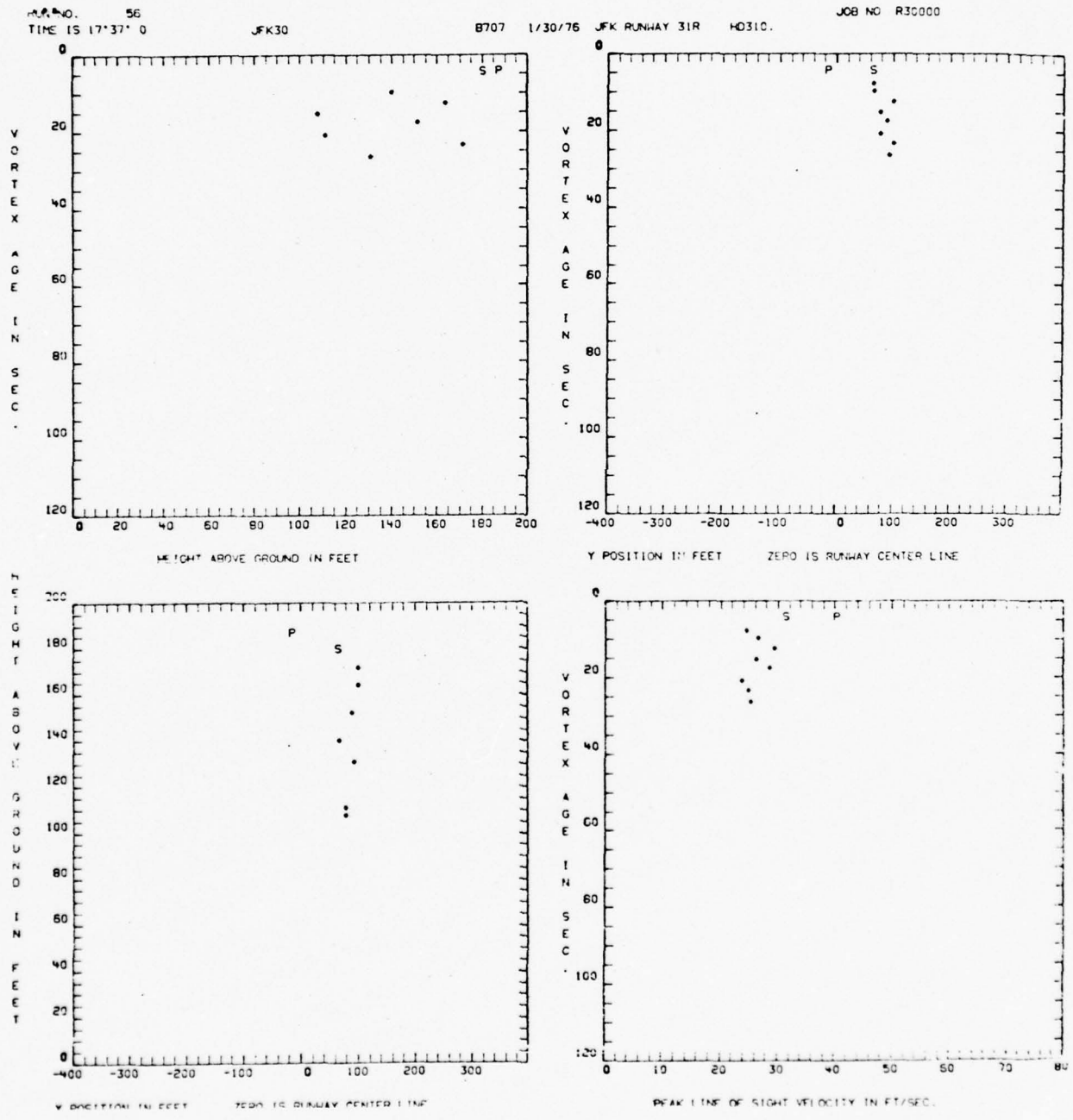

RUN NO. 51
TIME IS 17°26' 0
JFK30
8747 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.


TIME IS 17*28* 0
JFK30
B747 1/30/76 JFK RUNWAY 31R H0310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
PEAK LINE OF SIGHT VELOCITY IN FT/SEC


RUN NO. 53
TIME IS 17'29' 0
JFK30
B727 1/30/76 JFK RUNWAY 31R HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
VORTEX AGE IN SEC.


TIME IS 17*31* 0
JFK30
B727 1/30/76 JFK RUNWAY 31R HO310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET

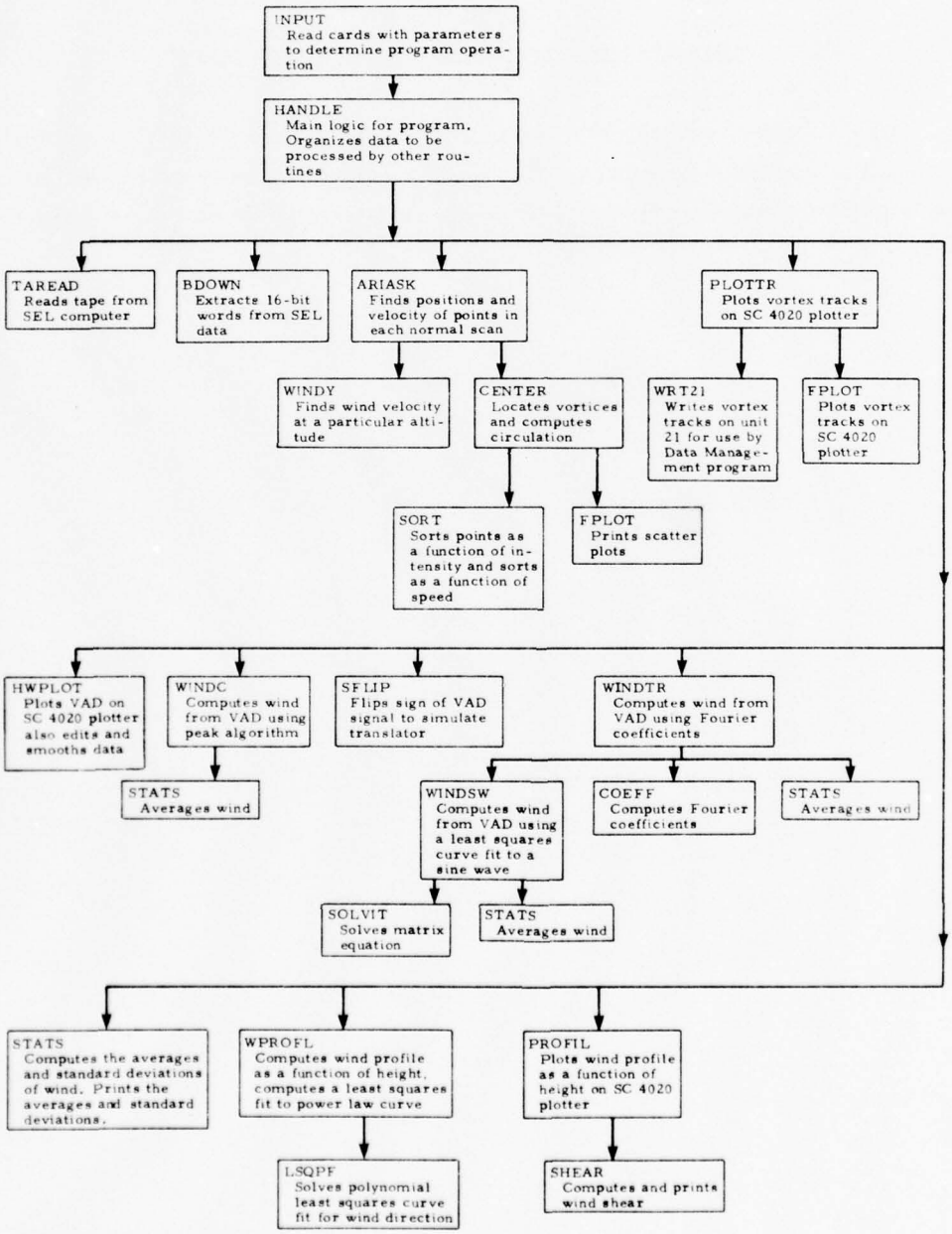

RUN NO. 55
TIME IS 17°32' 0
JFK30
B727 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
HEIGHT ABOVE GROUND IN FEET
Y POSITION IN FEET
ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
VORTEX AGE IN SEC.


RUN NO. 56
TIME IS 17*37* 0
JFK30
B707 1/30/76 JFK RUNWAY 31R HD310.
JOB NO R30000
VORTEX AGE IN SEC.
S P
HEIGHT ABOVE GROUND IN FEET
P S
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
HEIGHT ABOVE GROUND IN FEET
P S
Y POSITION IN FEET ZERO IS RUNWAY CENTER LINE
VORTEX AGE IN SEC.
S P
PEAK LINE OF SIGHT VELOCITY IN FT/SEC.

Appendix B
COMPUTER PROGRAM DOCUMENTATION

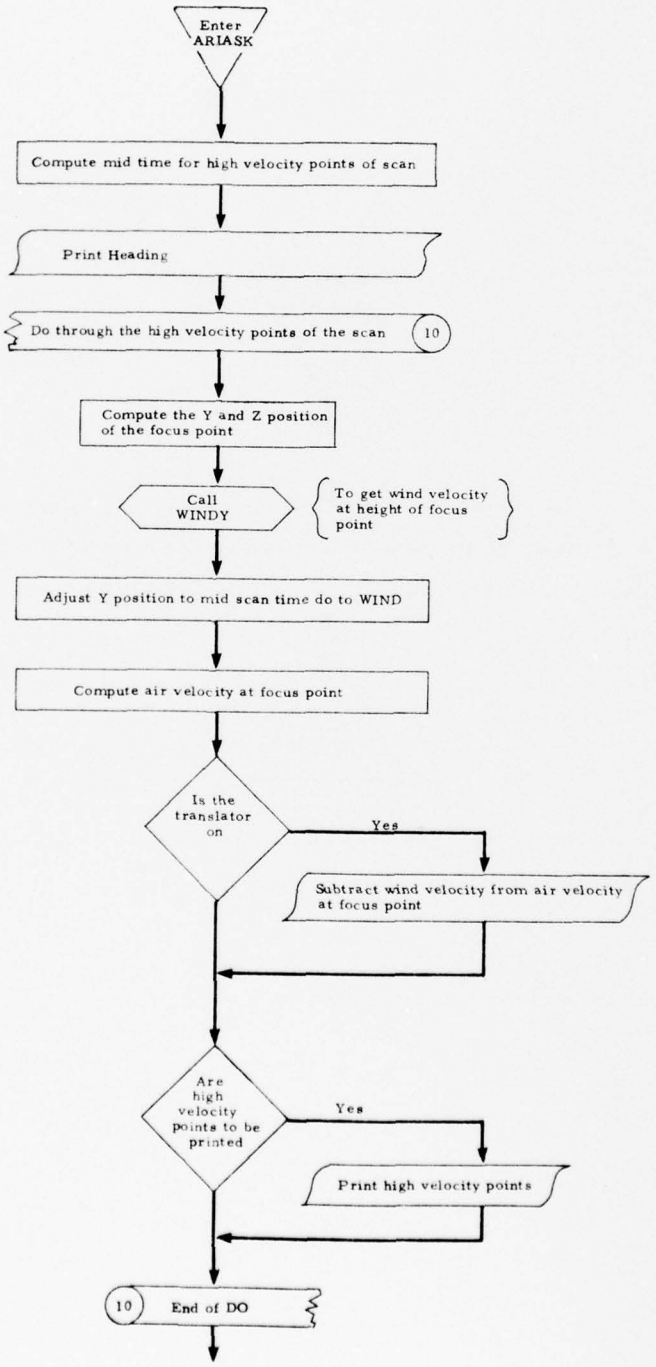
This appendix describes the computer programs developed and utilized during the research program. The discussion of the off-line computer software package includes flow charts of the basic routines and subroutines.

MACRO FLOW CHART OF VAD AND VORTEX TRACK PROGRAM



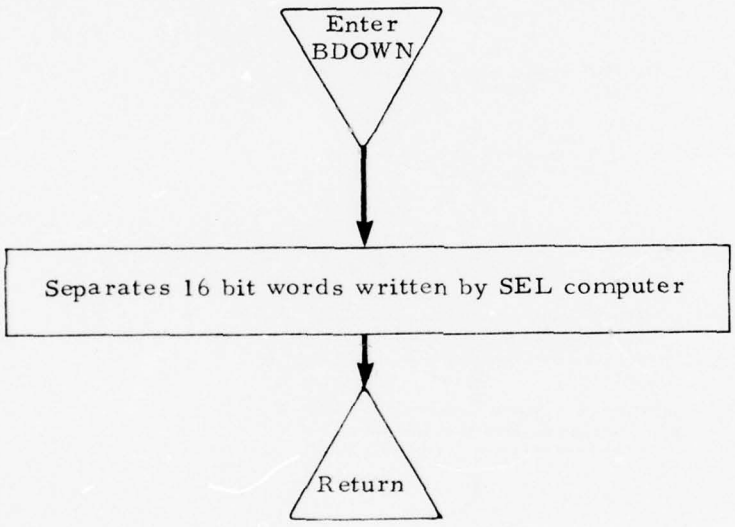
ROUTINE ARIASK

Finds position and velocity of points in each normal scan.



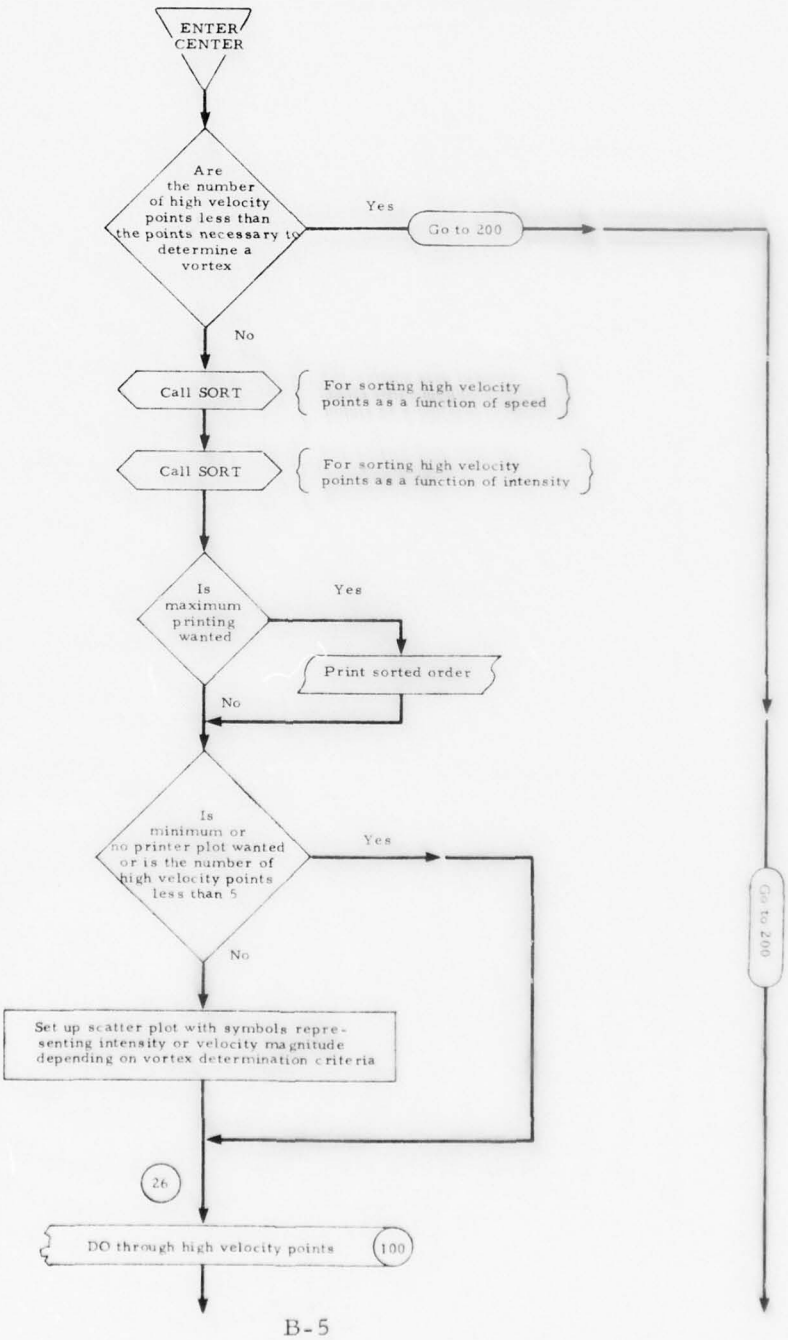
ROUTINE BDOWN

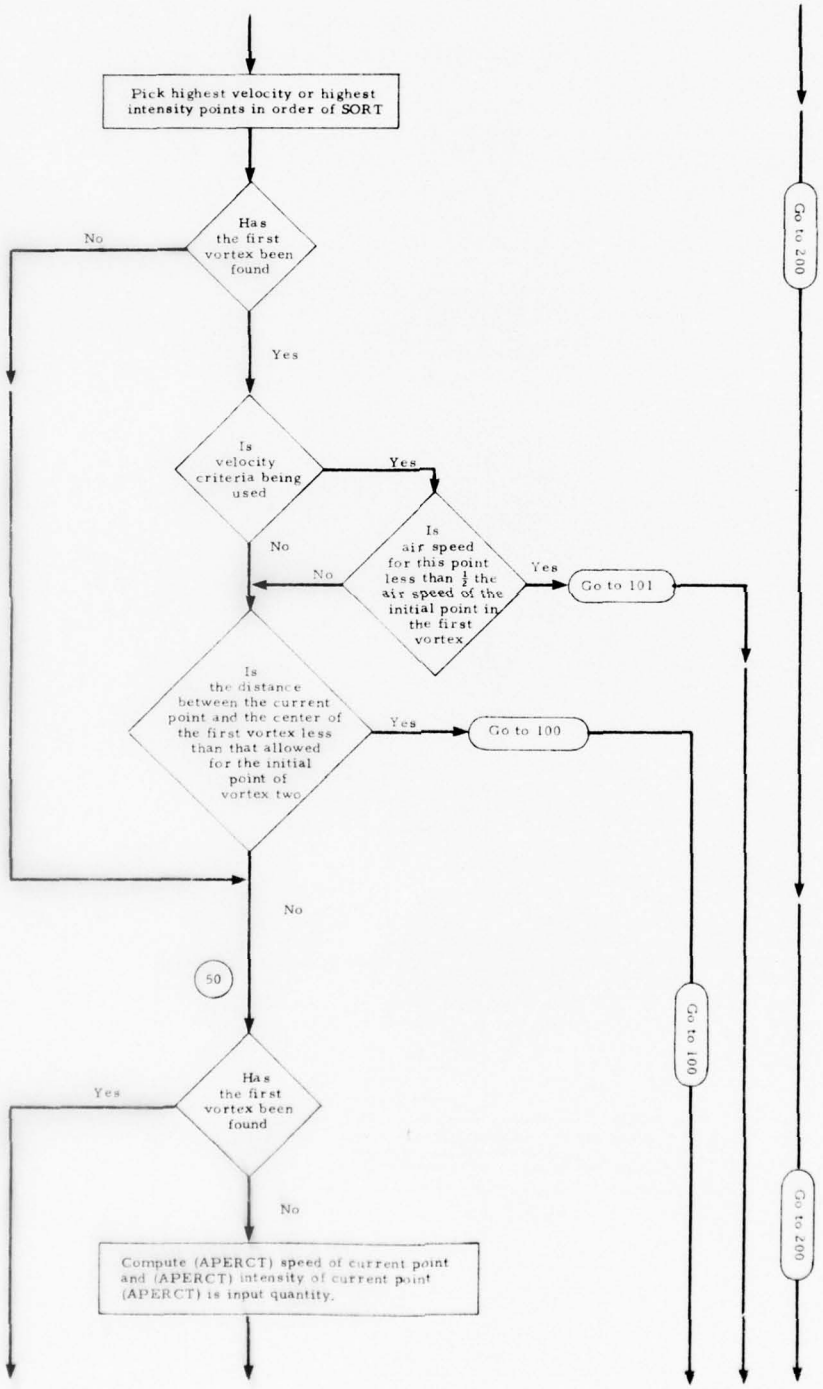
Separates 16 bit words written by SEL computer

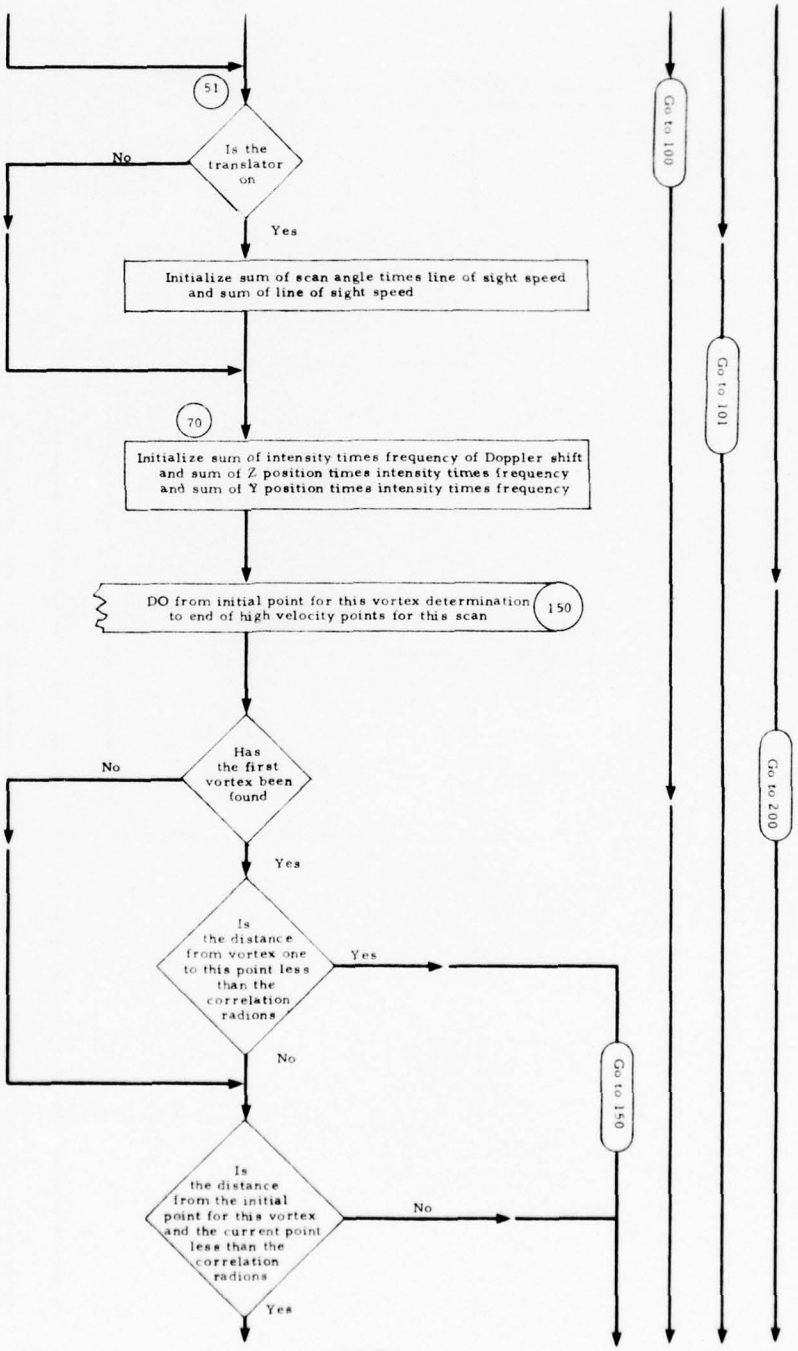


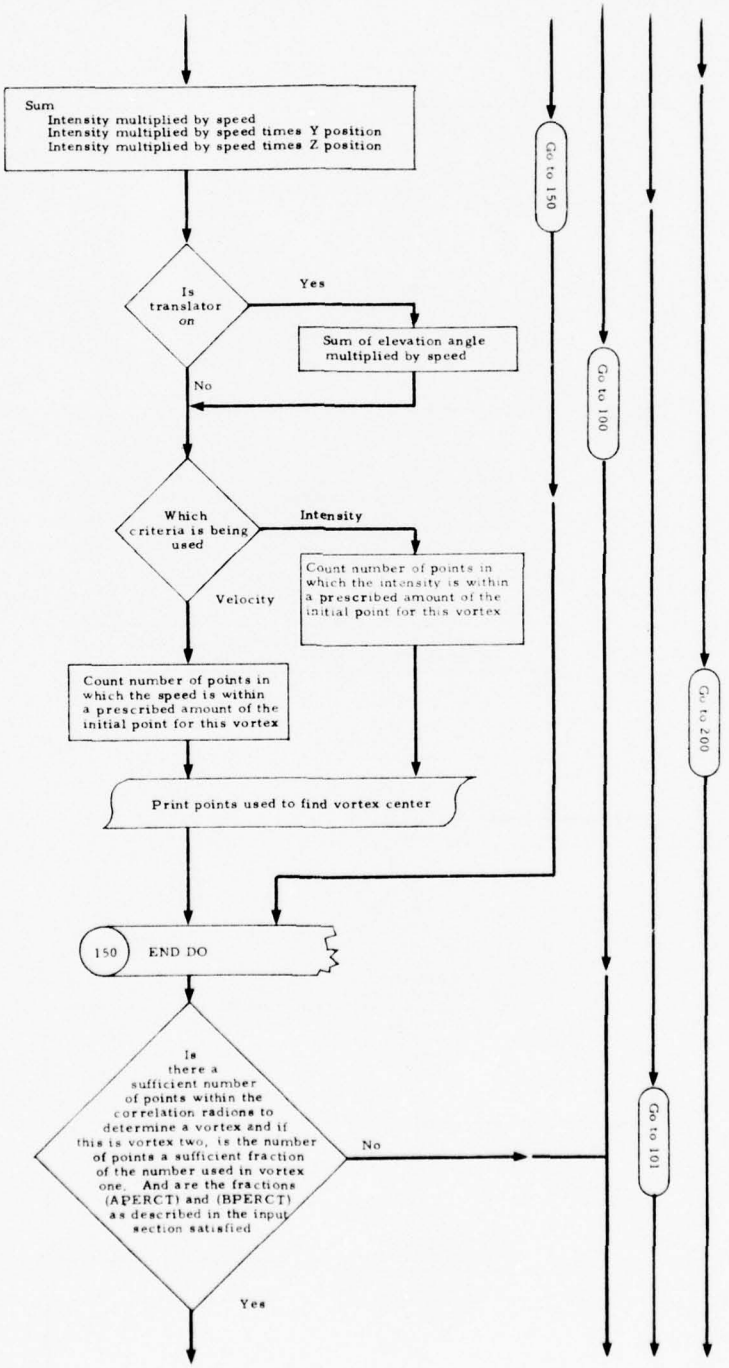
ROUTINE CENTER

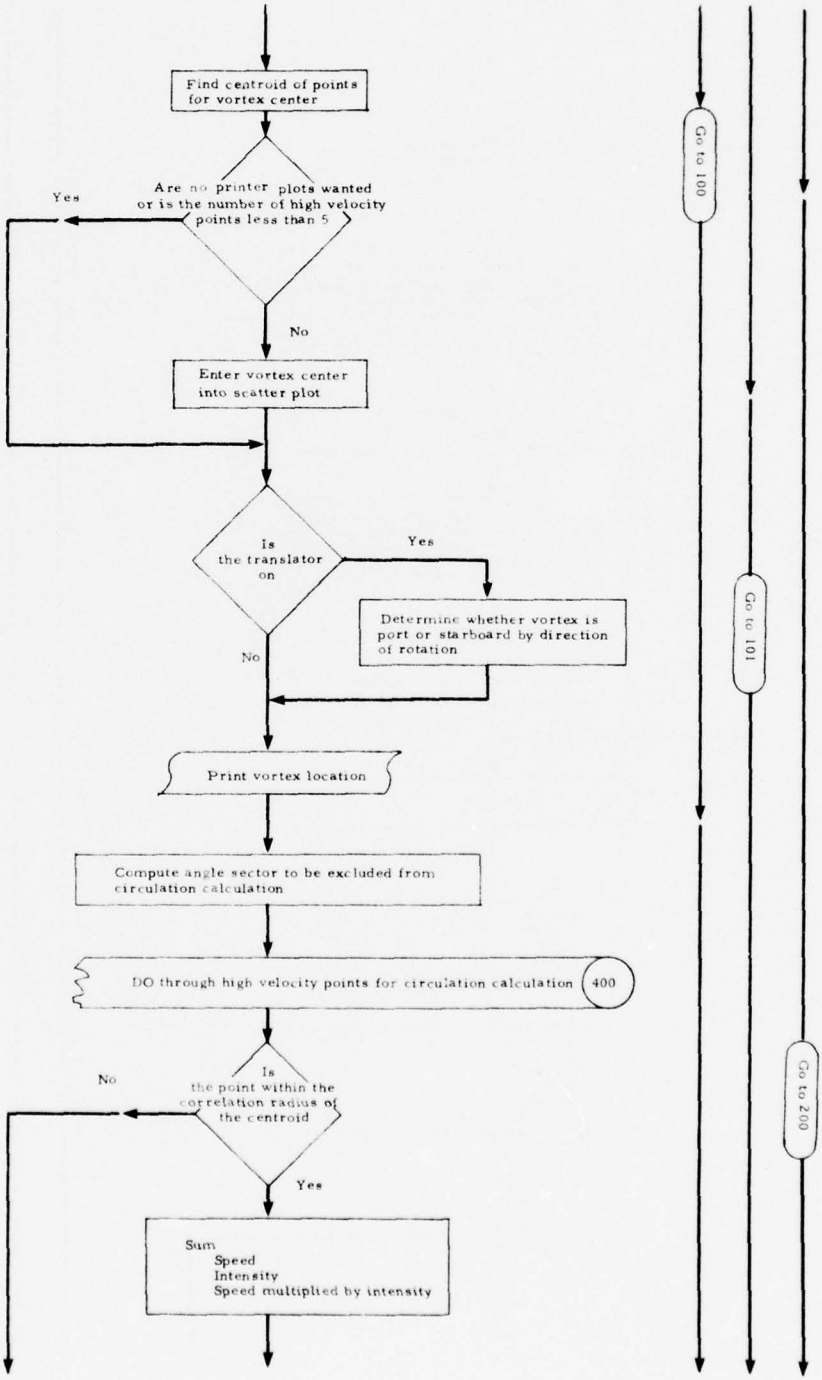
Locates vortices and computes circulation.

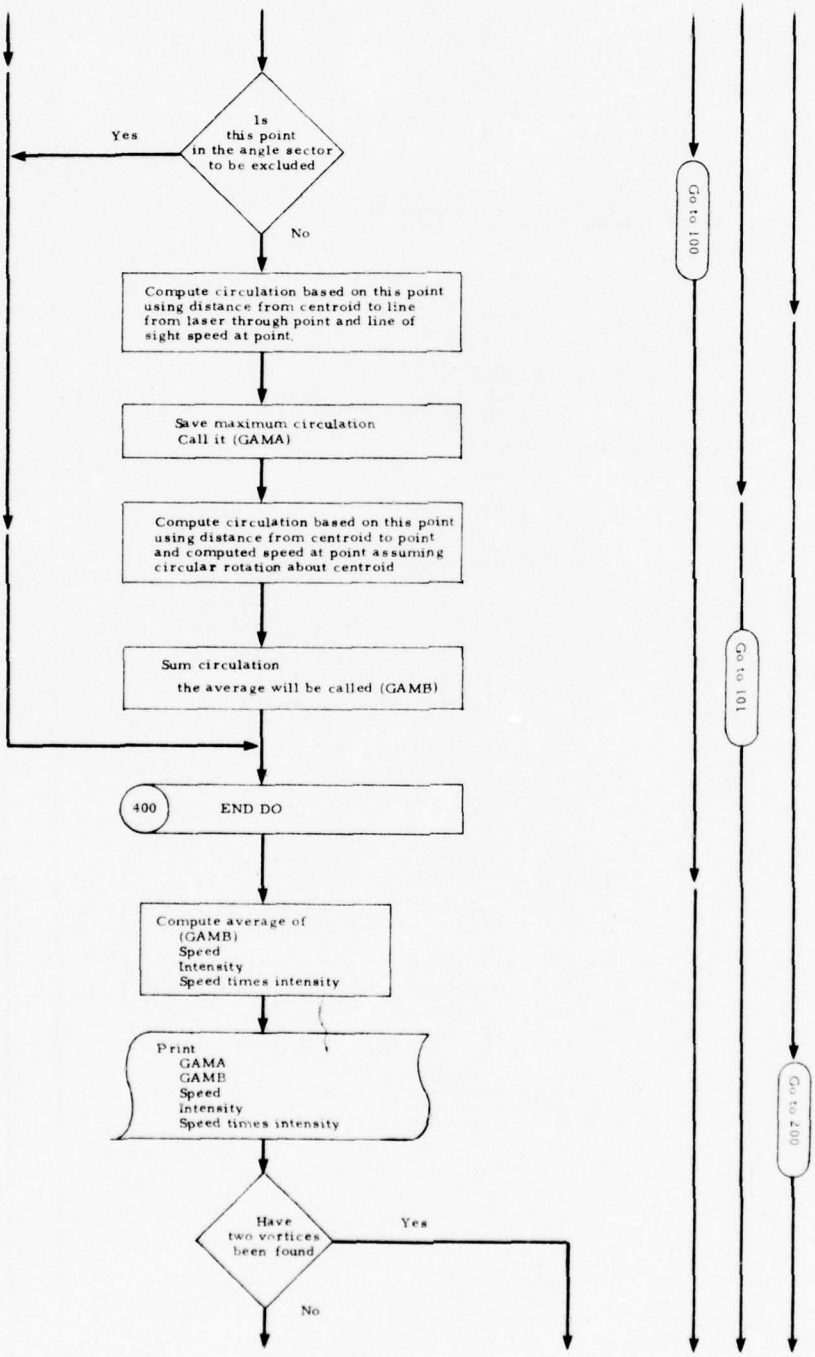


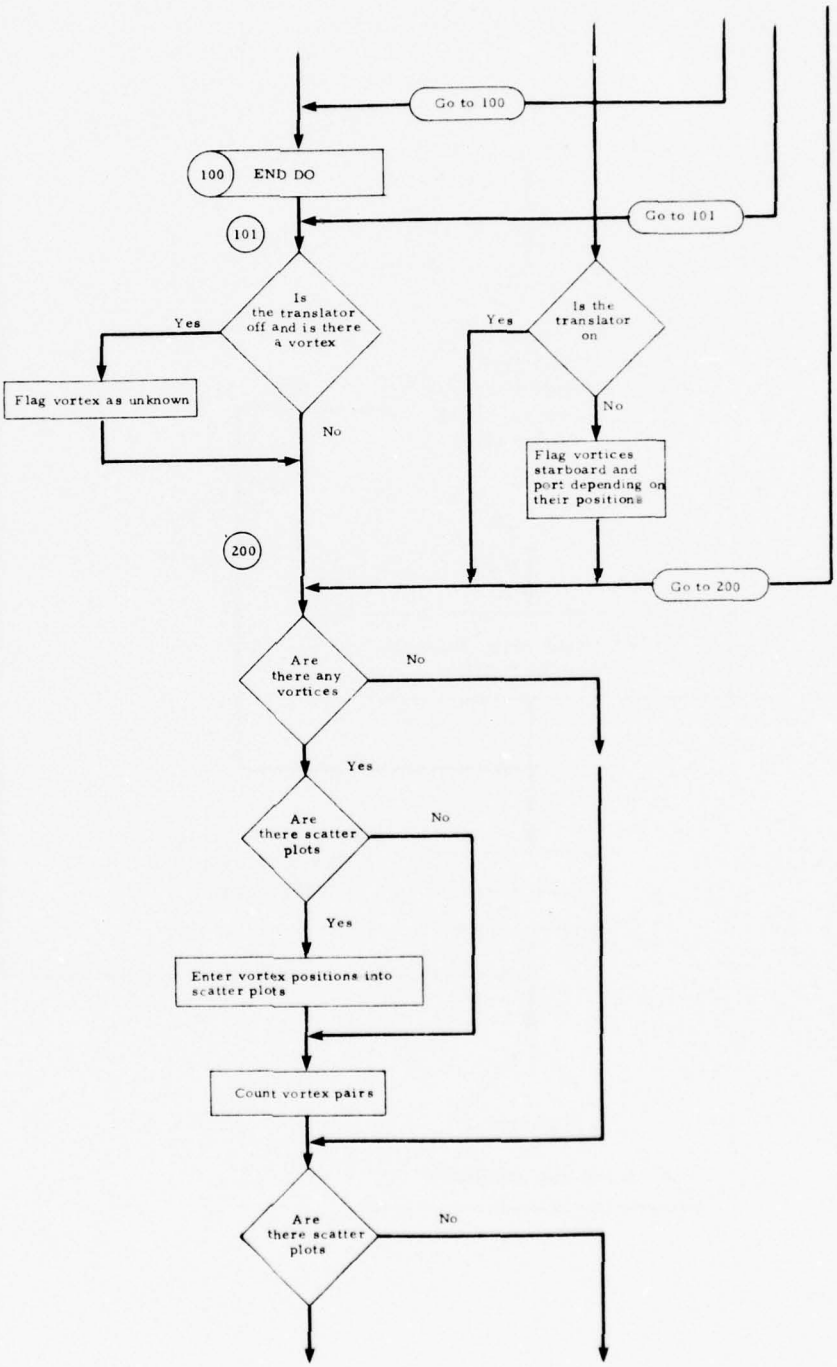

Pick highest velocity or highest intensity points in order of SORT
Has the first vortex been found
No
Yes
Is velocity criteria being used
Yes
No
Is air speed for this point less than ½ the air speed of the initial point in the first vortex
No
Yes
Go to 101
Is the distance between the current point and the center of the first vortex less than that allowed for the initial point of vortex two
Yes
Go to 100
No
50
Has the first vortex been found
Yes
No
Compute (APERCT) speed of current point and (APERCT) intensity of current point (APERCT) is input quantity.
Go to 200
Go to 100
Go to 200

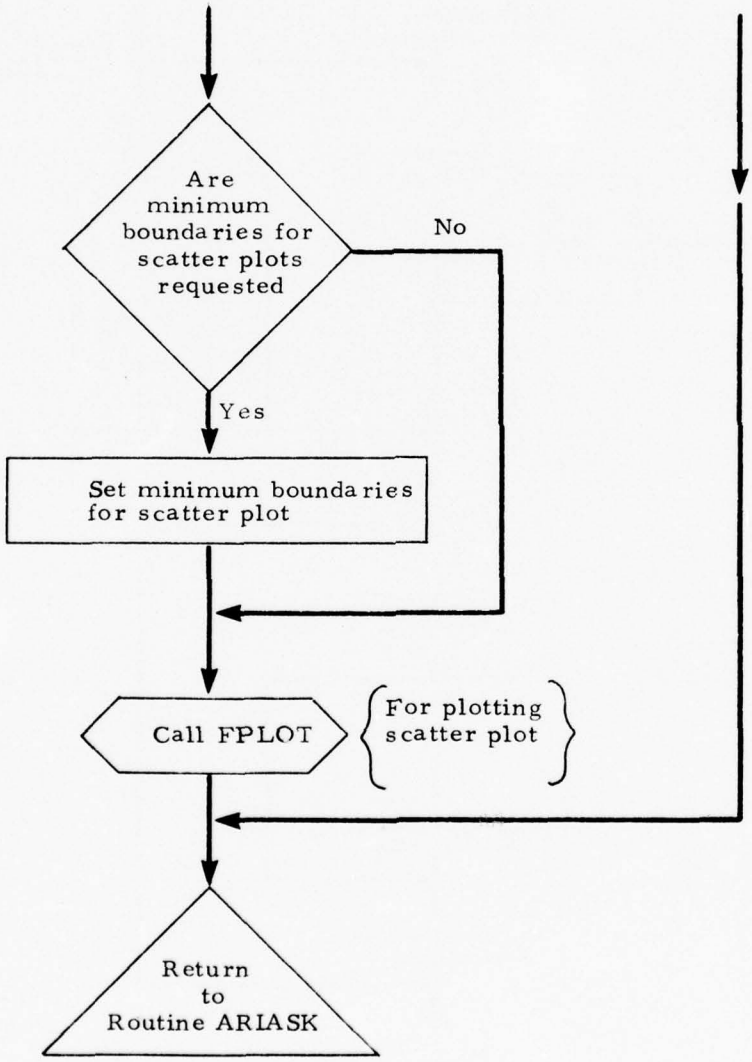

51
Is the translator on
No
Yes
Initialize sum of scan angle times line of sight speed and sum of line of sight speed
70
Initialize sum of intensity times frequency of Doppler shift and sum of Z position times intensity times frequency and sum of Y position times intensity times frequency
DO from initial point for this vortex determination to end of high velocity points for this scan
150
Has the first vortex been found
No
Yes
Is the distance from vortex one to this point less than the correlation radions
Yes
No
Is the distance from the initial point for this vortex and the current point less than the correlation radions
No
Yes
Go to 100
Go to 101
Go to 150
Go to 200


Sum
Intensity multiplied by speed
Intensity multiplied by speed times Y position
Intensity multiplied by speed times Z position
Is translator on
Yes
Sum of elevation angle multiplied by speed
No
Which criteria is being used
Intensity
Count number of points in which the intensity is within a prescribed amount of the initial point for this vortex
Velocity
Count number of points in which the speed is within a prescribed amount of the initial point for this vortex
Print points used to find vortex center
150 END DO
Is there a sufficient number of points within the correlation radions to determine a vortex and if this is vortex two, is the number of points a sufficient fraction of the number used in vortex one. And are the fractions (APERCT) and (BPERCT) as described in the input section satisfied
No
Yes
Go to 150
Go to 100
Go to 200
Go to 101


Find centroid of points for vortex center
Are no printer plots wanted or is the number of high velocity points less than 5
Yes
No
Enter vortex center into scatter plot
Is the translator on
Yes
No
Determine whether vortex is port or starboard by direction of rotation
Print vortex location
Compute angle sector to be excluded from circulation calculation
DO through high velocity points for circulation calculation
400
Is the point within the correlation radius of the centroid
No
Yes
Sum
Speed
Intensity
Speed multiplied by intensity
Go to 100
Go to 101
Go to 200

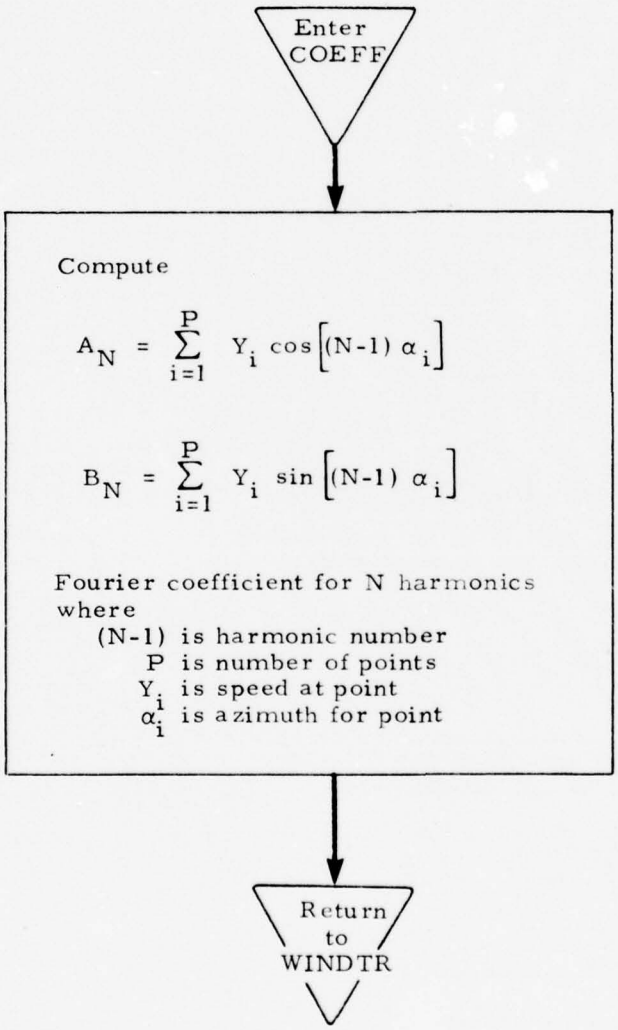

Is this point in the angle sector to be excluded
Yes
No
Compute circulation based on this point using distance from centroid to line from laser through point and line of sight speed at point.
Save maximum circulation Call it (GAMA)
Compute circulation based on this point using distance from centroid to point and computed speed at point assuming circular rotation about centroid
Sum circulation the average will be called (GAMB)
400
END DO
Compute average of (GAMB) Speed Intensity Speed times intensity
Print GAMA GAMB Speed Intensity Speed times intensity
Have two vertices been found
Yes
No
Go to 100
Go to 101
Go to 200


Go to 100
100
END DO
Go to 101
101
Is the translator off and is there a vortex
Yes
Flag vortex as unknown
No
Is the translator on
Yes
No
Flag vortices starboard and port depending on their positions
200
Go to 200
Are there any vortices
No
Yes
Are there scatter plots
No
Yes
Enter vortex positions into scatter plots
Count vortex pairs
Are there scatter plots
No


Are minimum boundaries for scatter plots requested
No
Yes
Set minimum boundaries for scatter plot
Call FPLOT
For plotting scatter plot
Return to Routine ARIASK

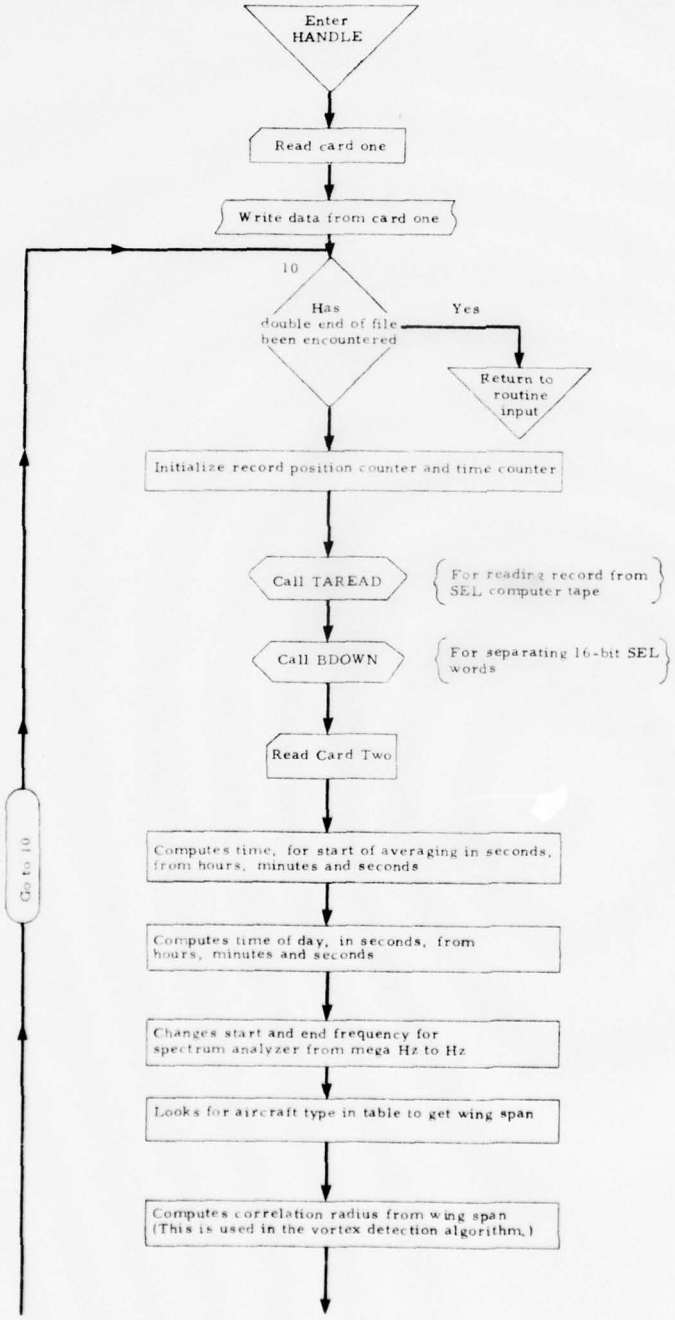
ROUTINE COEFF

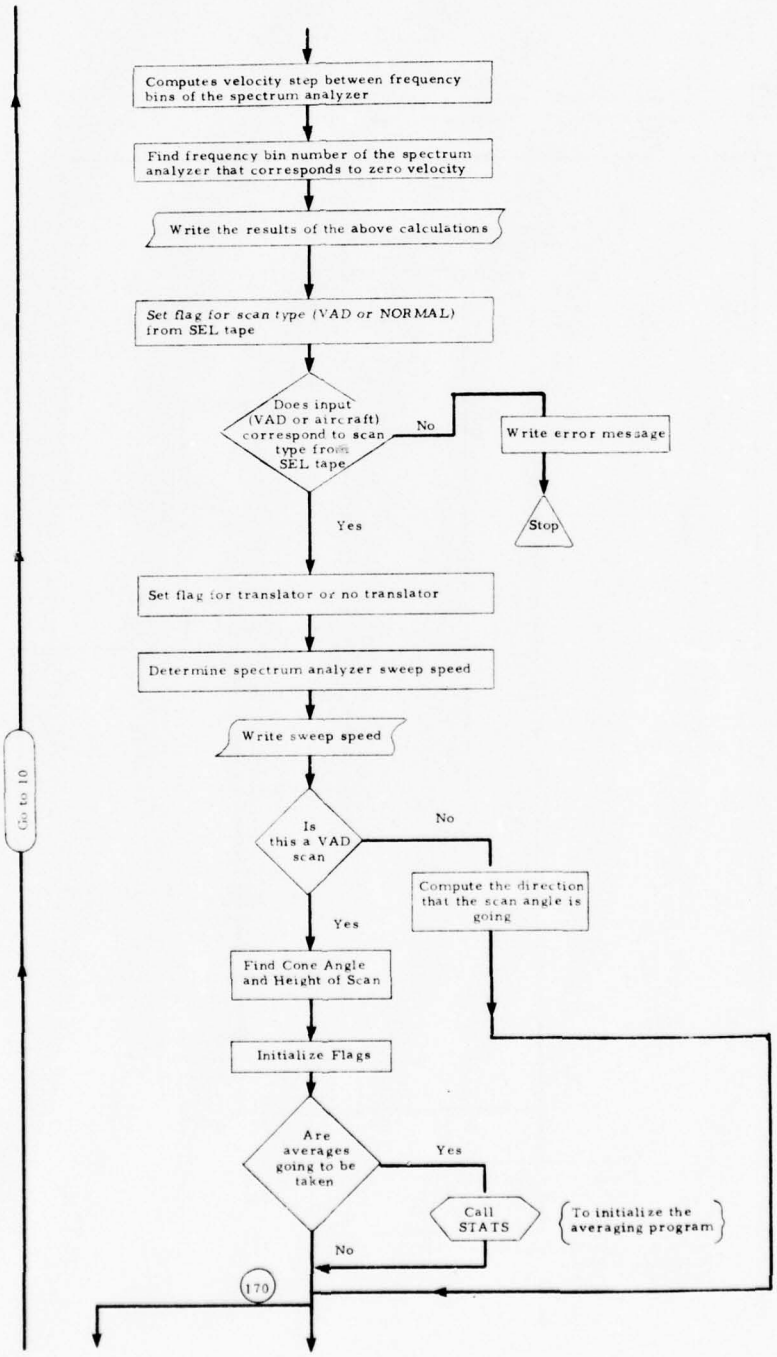
Computes Fourier coefficients of VAD signal

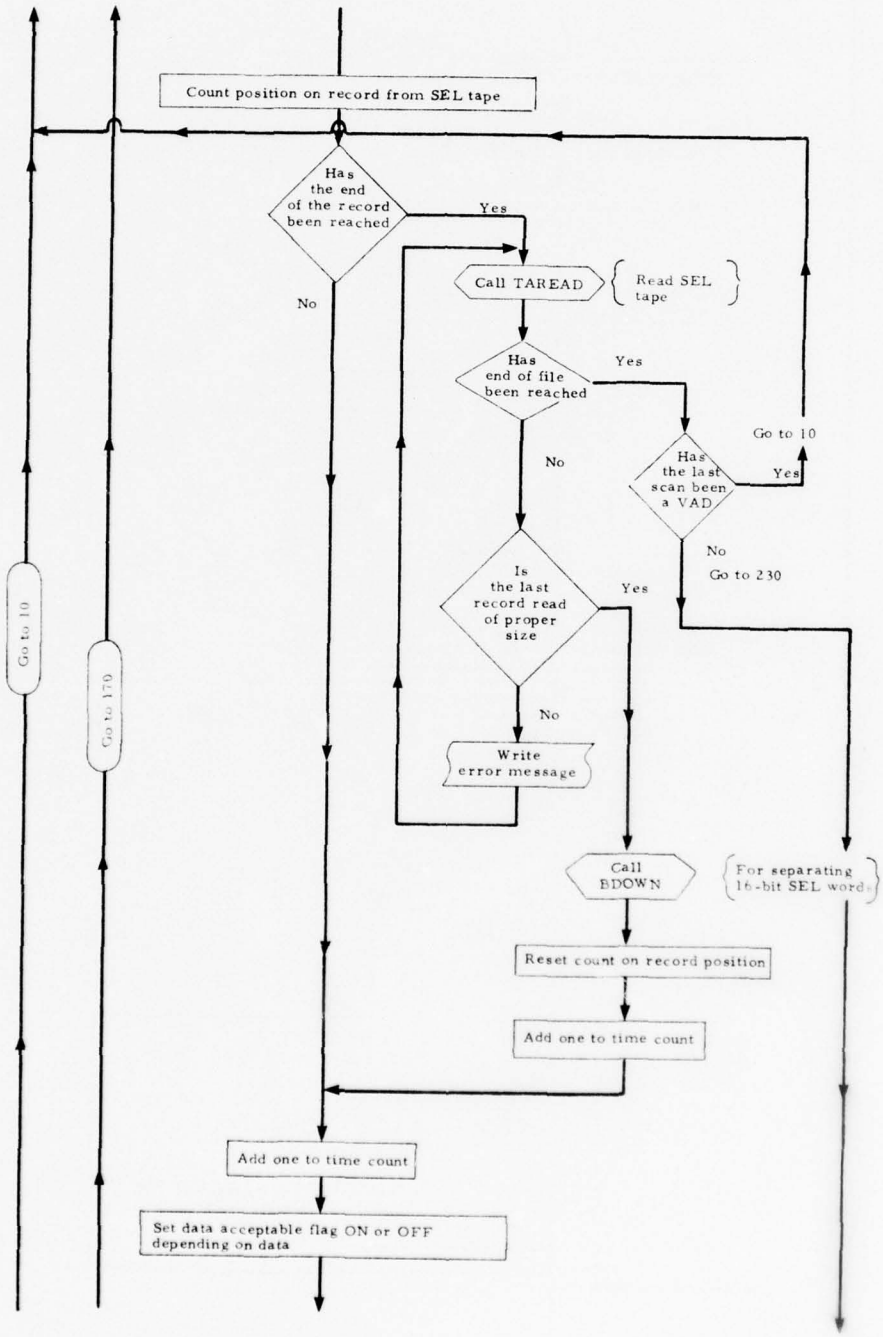


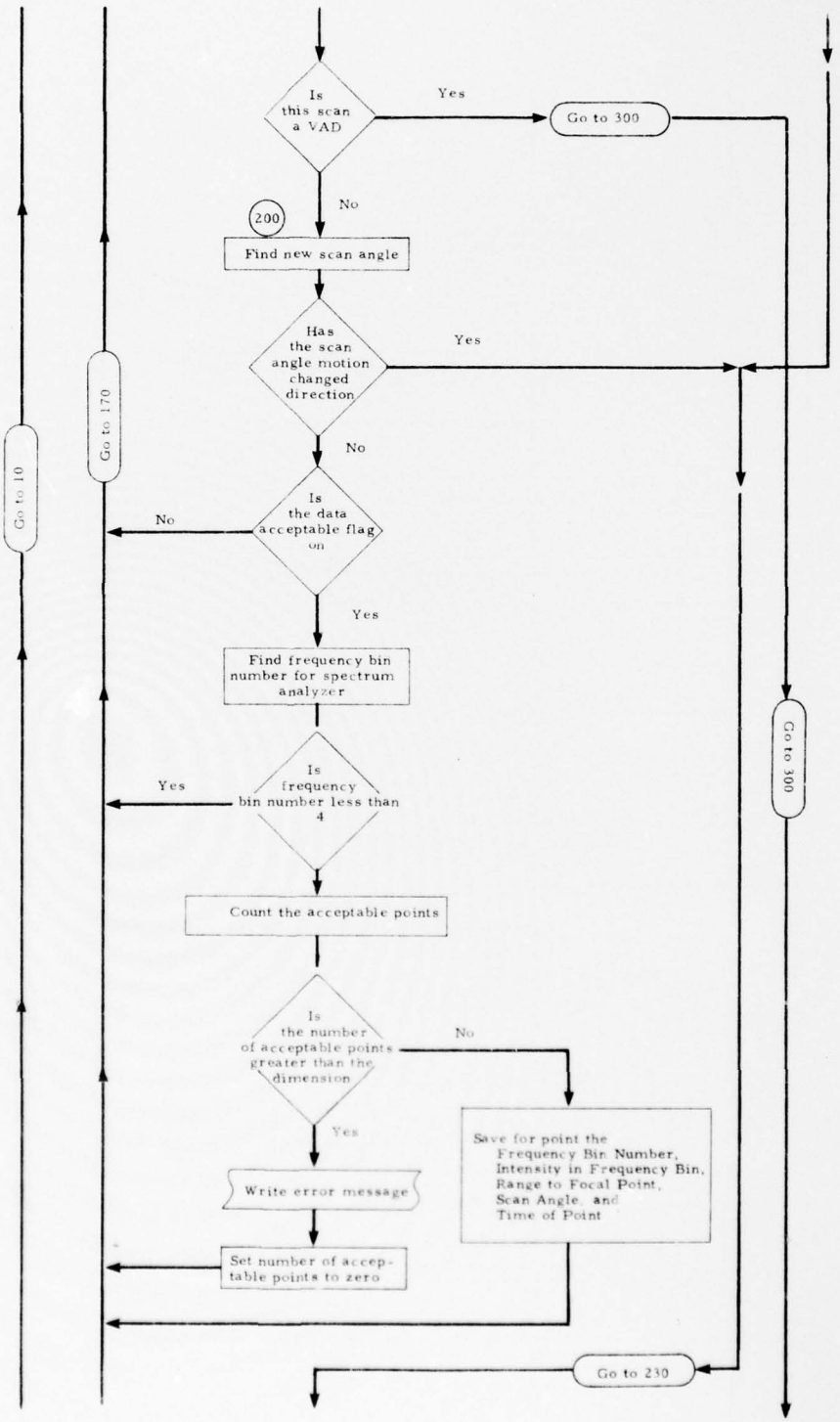
ROUTINE HANDLE

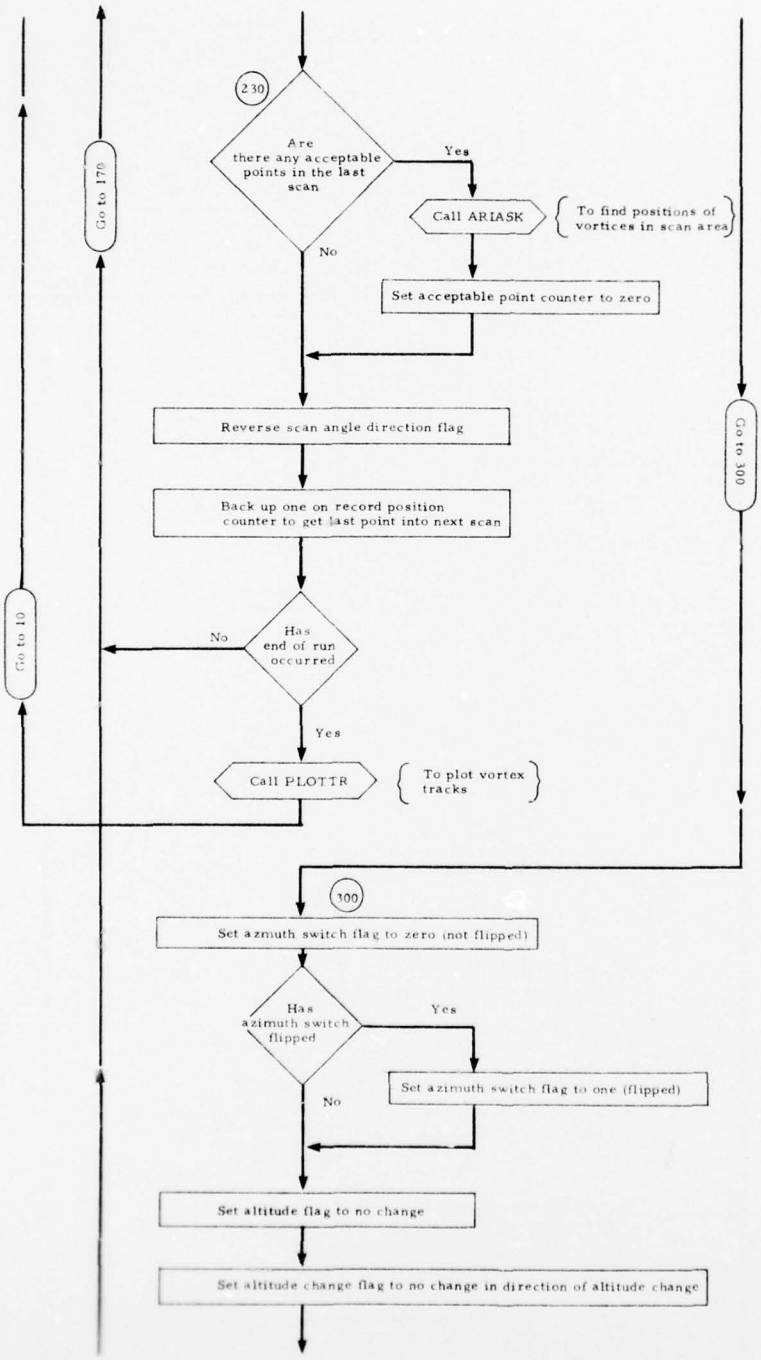
Main logic for program. Organizes data to be processed by other routines.

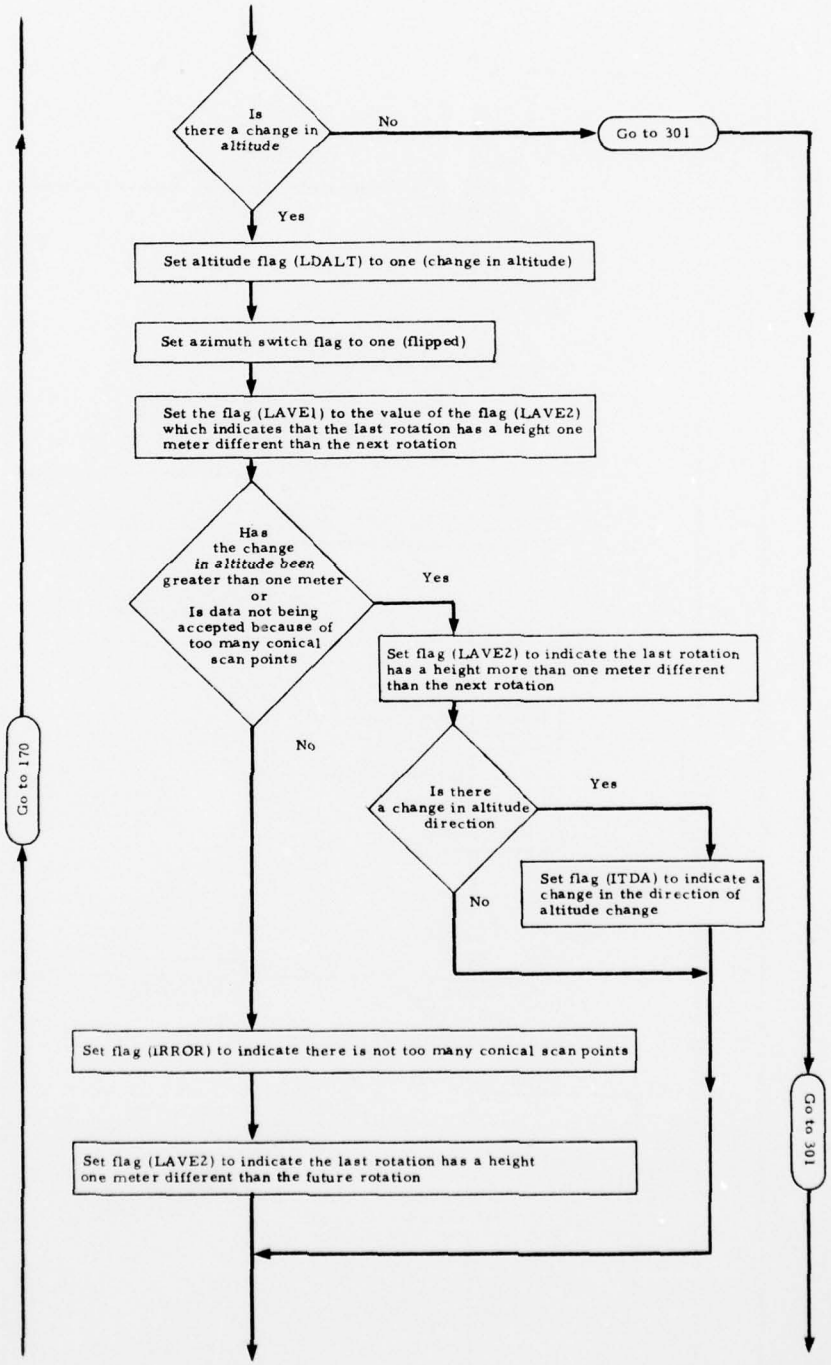


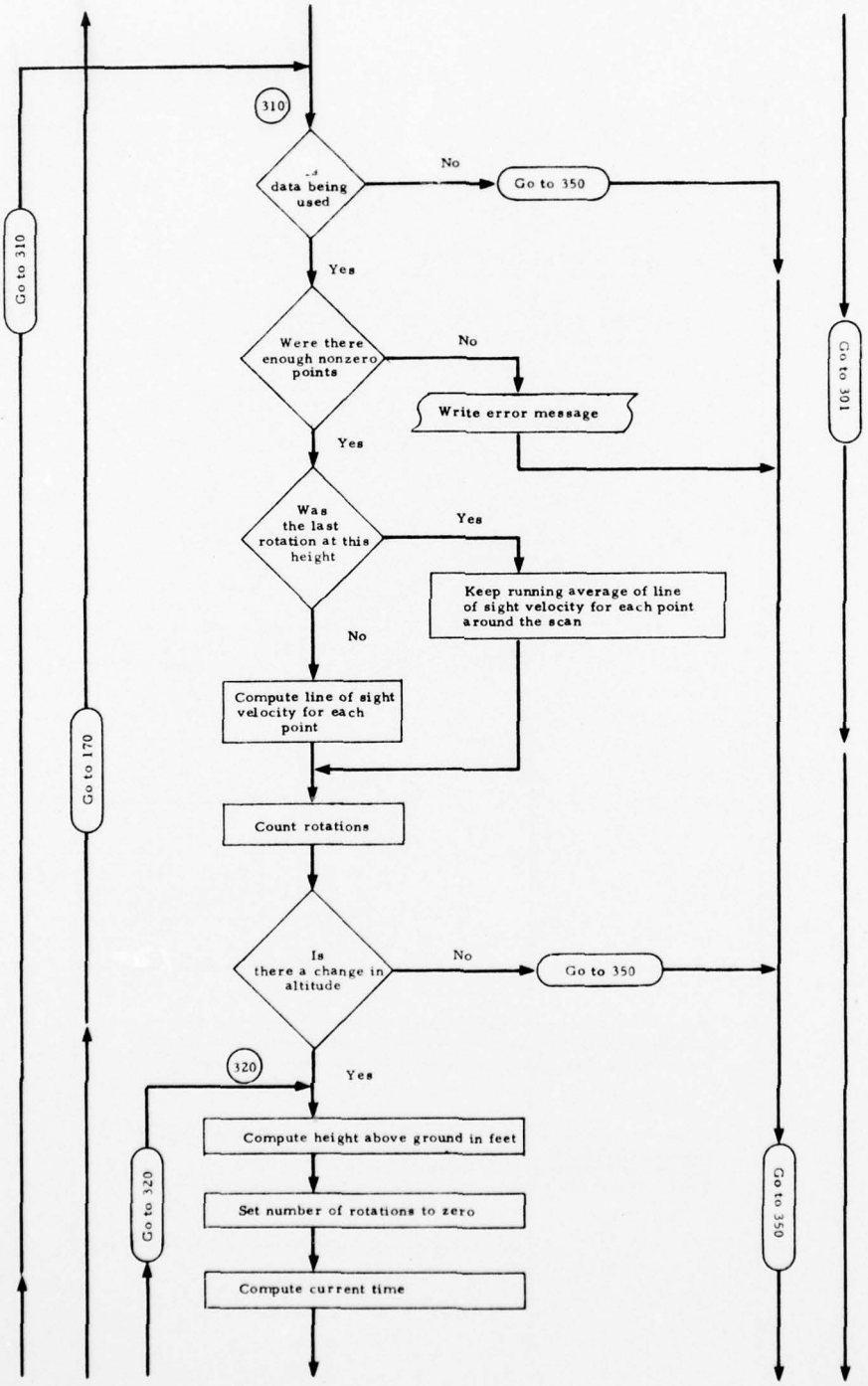

Computes velocity step between frequency bins of the spectrum analyzer
Find frequency bin number of the spectrum analyzer that corresponds to zero velocity
Write the results of the above calculations
Set flag for scan type (VAD or NORMAL) from SEL tape
Does input (VAD or aircraft) correspond to scan type from SEL tape
No
Write error message
Stop
Yes
Set flag for translator or no translator
Determine spectrum analyzer sweep speed
Write sweep speed
Is this a VAD scan
No
Compute the direction that the scan angle is going
Yes
Find Cone Angle and Height of Scan
Initialize Flags
Are averages going to be taken
Yes
Call STATS
To initialize the averaging program
No
170
Go to 10

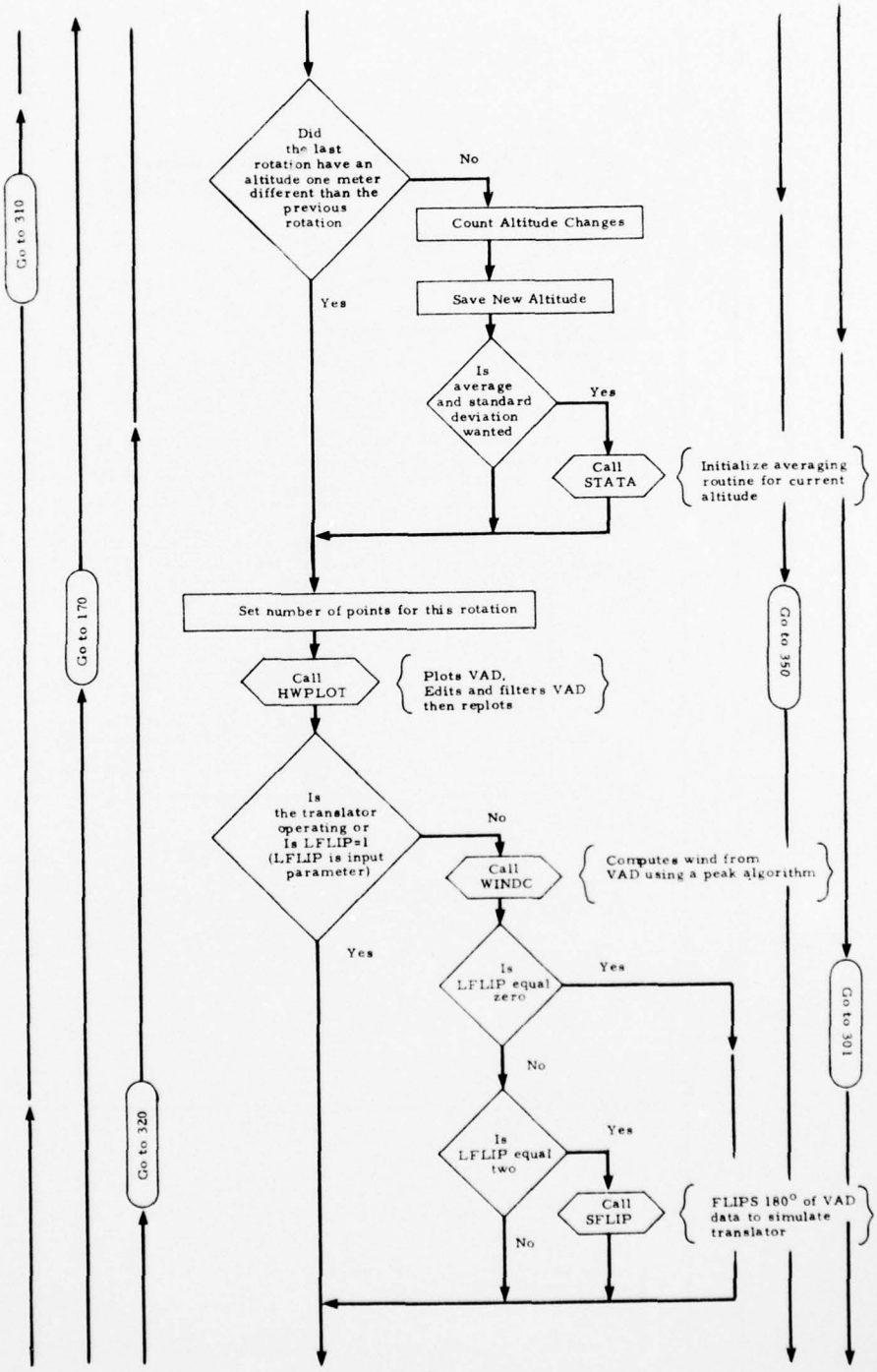

Count position on record from SEL tape
Has the end of the record been reached
Yes
No
Call TAREAD
Read SEL tape
Has end of file been reached
Yes
No
Has the last scan been a VAD
Yes
Go to 10
No
Go to 230
Is the last record read of proper size
Yes
No
Write error message
Call BDOWN
For separating 16-bit SEL words
Reset count on record position
Add one to time count
Add one to time count
Set data acceptable flag ON or OFF depending on data
Go to 10
Go to 170

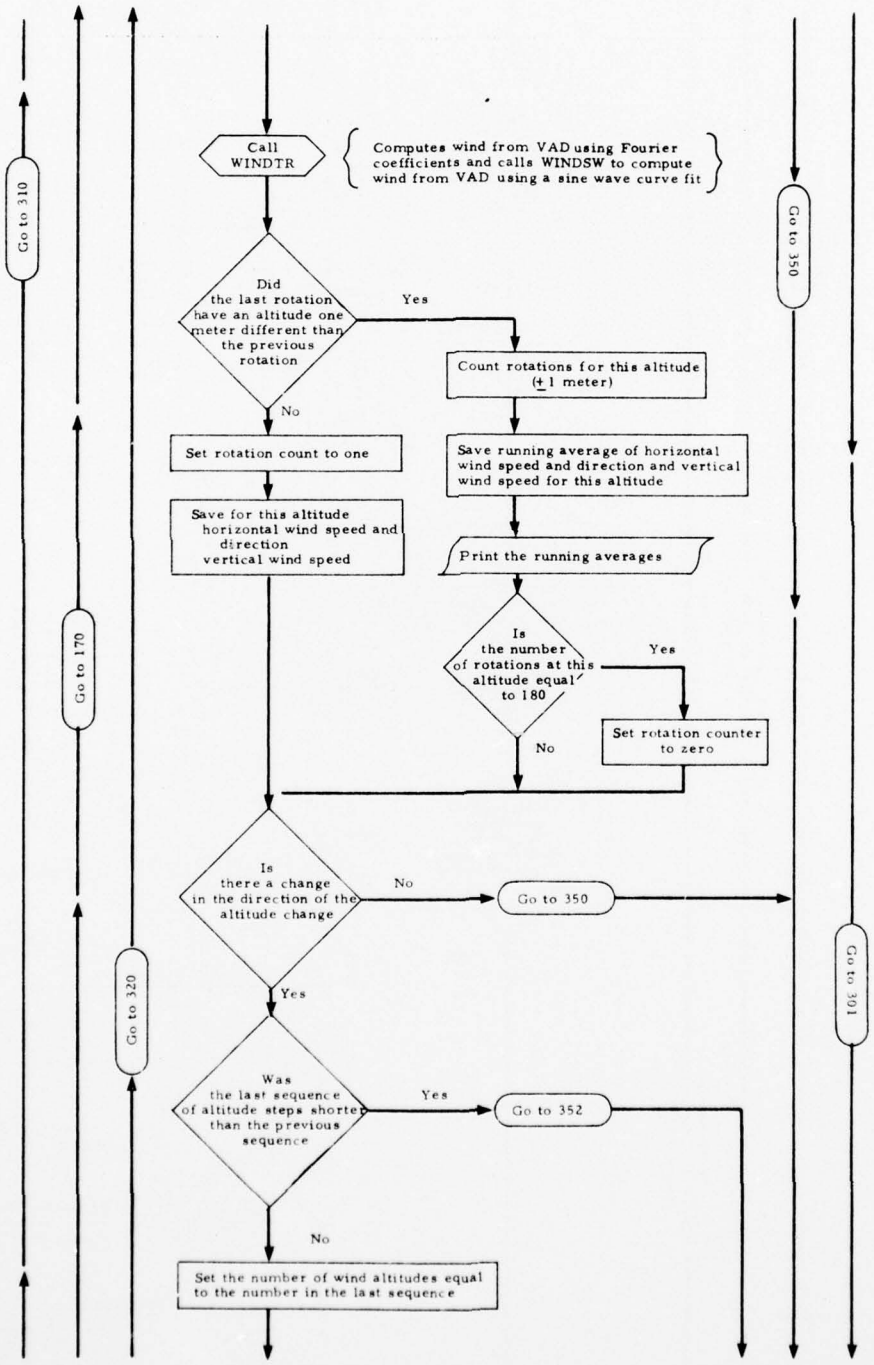

Is this scan a VAD
Yes
Go to 300
No
200
Find new scan angle
Has the scan angle motion changed direction
Yes
No
Is the data acceptable flag on
No
Yes
Find frequency bin number for spectrum analyzer
Is frequency bin number less than 4
Yes
Count the acceptable points
Is the number of acceptable points greater than the dimension
No
Yes
Write error message
Set number of acceptable points to zero
Save for point the Frequency Bin Number, Intensity in Frequency Bin, Range to Focal Point, Scan Angle, and Time of Point
Go to 230
Go to 10
Go to 170
Go to 300

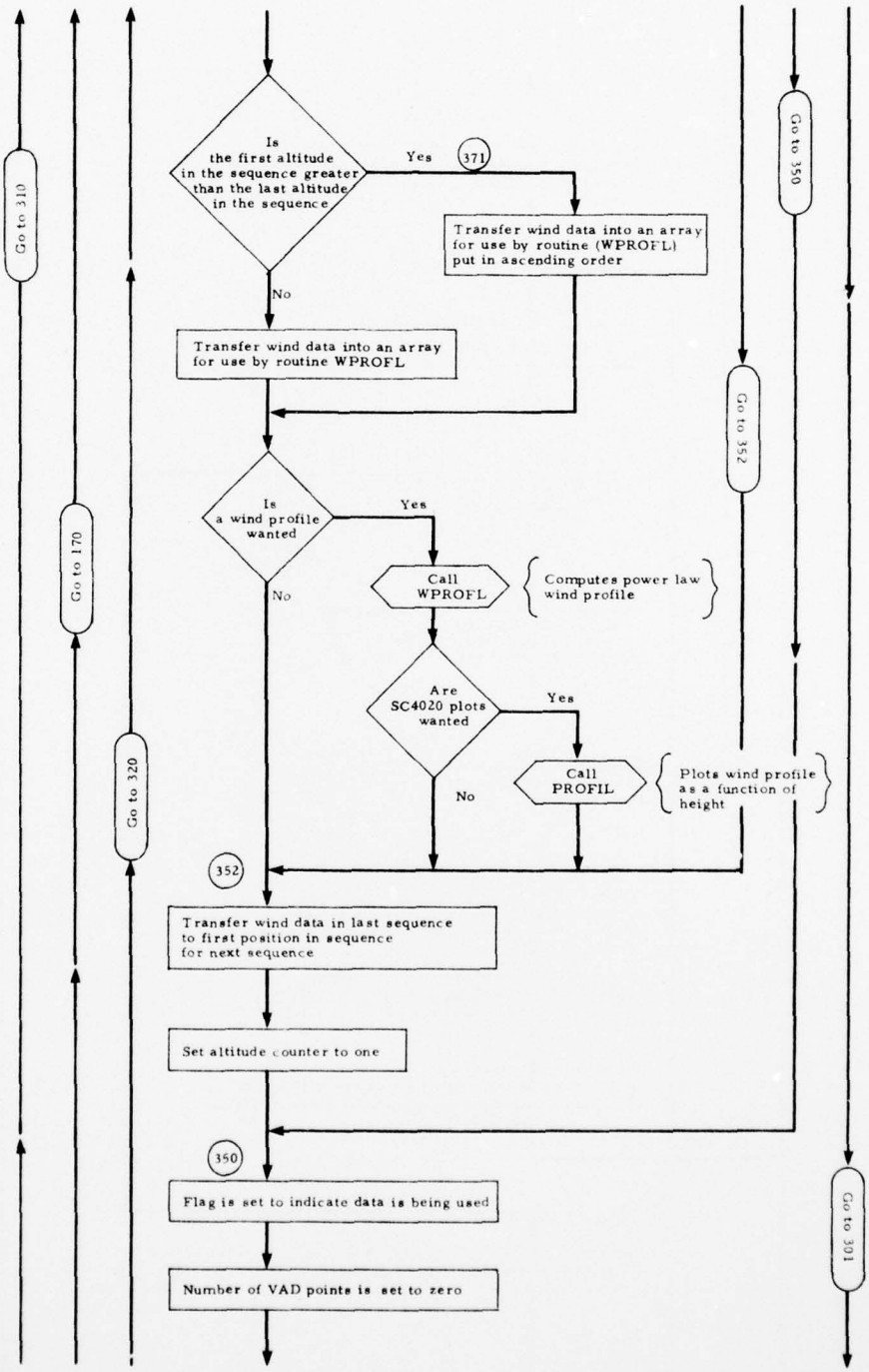

230
Are there any acceptable points in the last scan
Yes
Call ARIASK
To find positions of vortices in scan area
No
Set acceptable point counter to zero
Reverse scan angle direction flag
Back up one on record position counter to get last point into next scan
Has end of run occurred
No
Yes
Call PLOTTR
To plot vortex tracks
Go to 170
Go to 10
Go to 300
300
Set azmuth switch flag to zero (not flipped)
Has azimuth switch flipped
Yes
No
Set azimuth switch flag to one (flipped)
Set altitude flag to no change
Set altitude change flag to no change in direction of altitude change

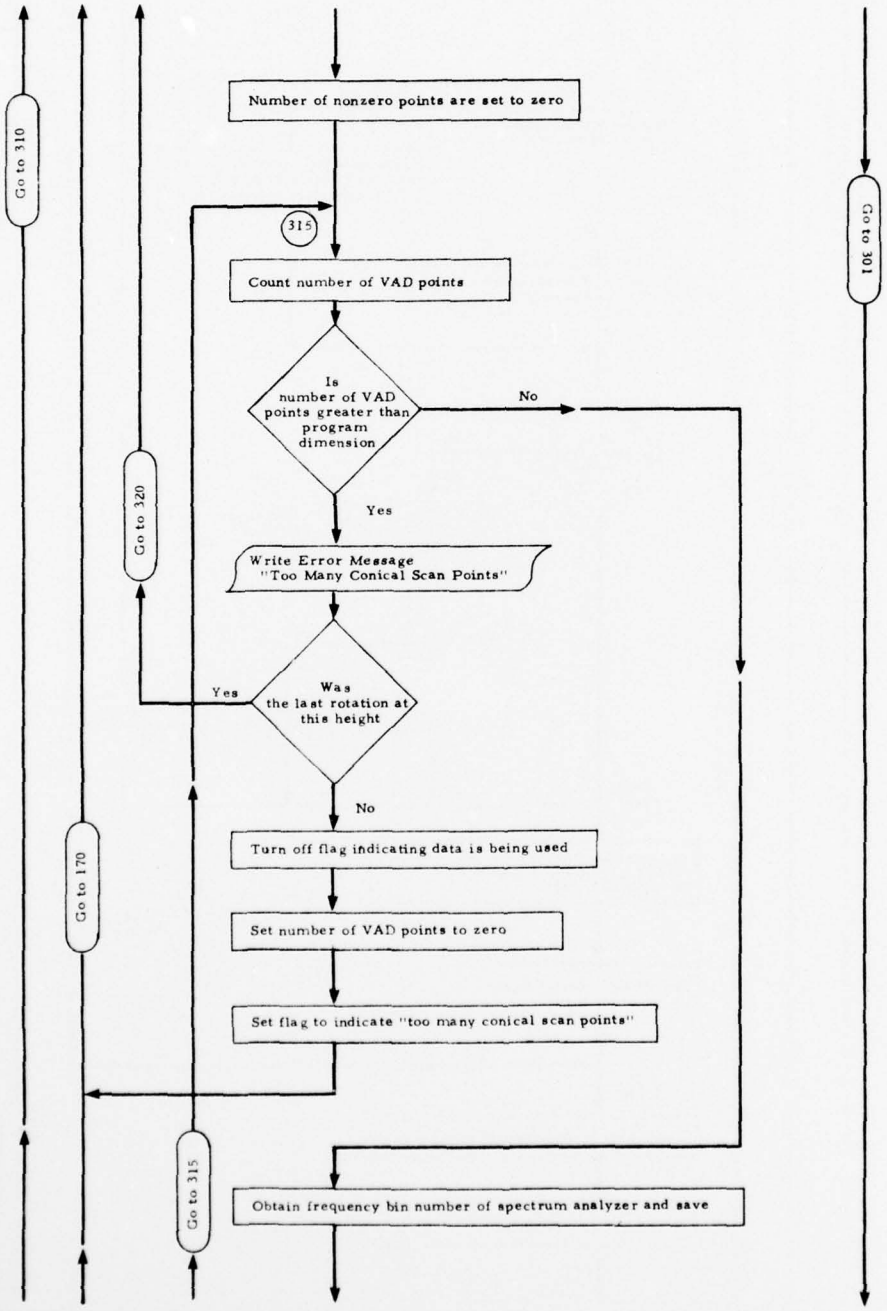

Is there a change in altitude
No
Go to 301
Yes
Set altitude flag (LDALT) to one (change in altitude)
Set azimuth switch flag to one (flipped)
Set the flag (LAVE1) to the value of the flag (LAVE2) which indicates that the last rotation has a height one meter different than the next rotation
Has the change in altitude been greater than one meter or Is data not being accepted because of too many conical scan points
Yes
Set flag (LAVE2) to indicate the last rotation has a height more than one meter different than the next rotation
No
Is there a change in altitude direction
Yes
Set flag (ITDA) to indicate a change in the direction of altitude change
No
Set flag (IRROR) to indicate there is not too many conical scan points
Set flag (LAVE2) to indicate the last rotation has a height one meter different than the future rotation
Go to 170
Go to 301

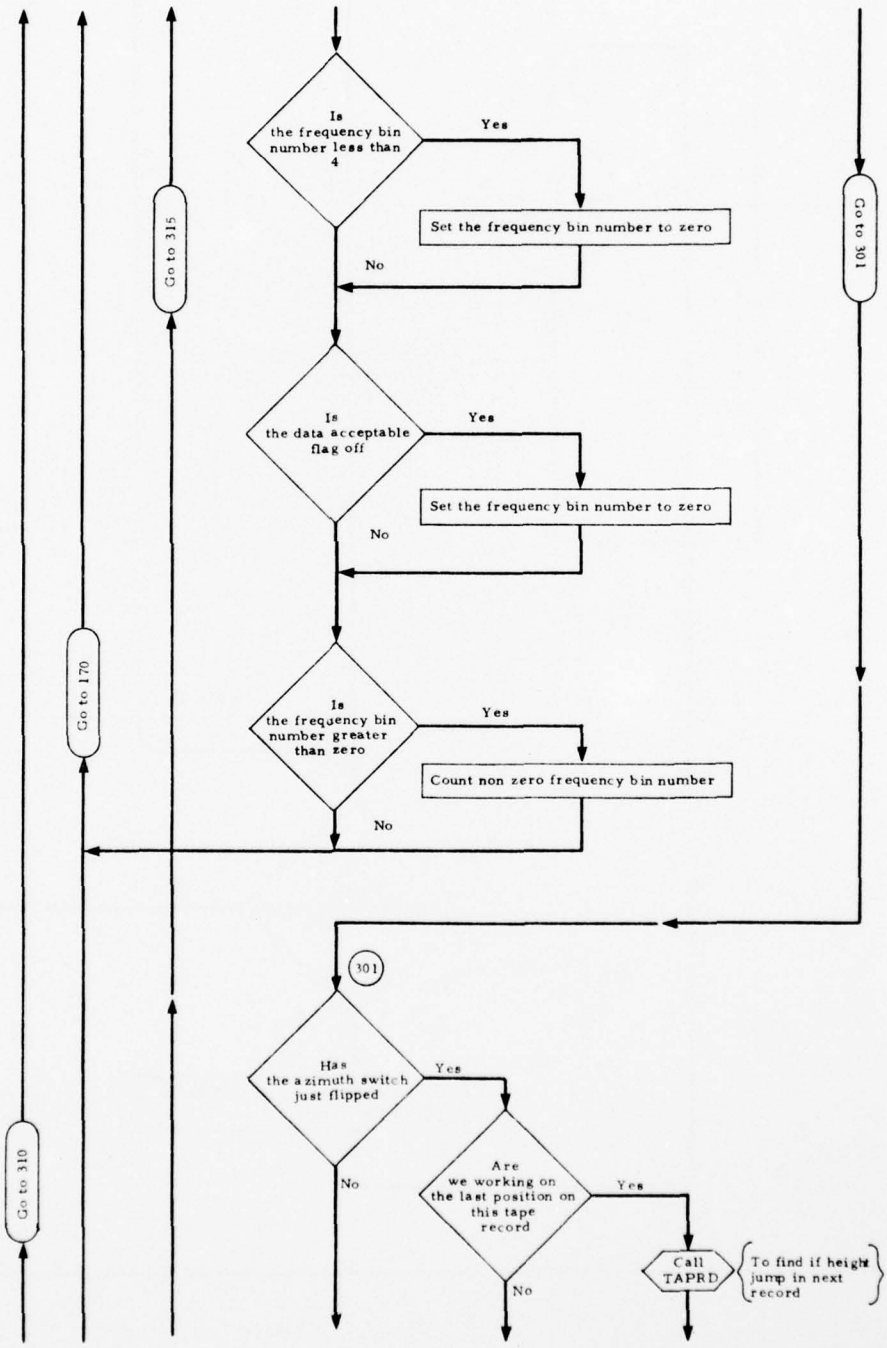

310
data being used
No
Go to 350
Yes
Were there enough nonzero points
No
Write error message
Yes
Was the last rotation at this height
Yes
Keep running average of line of sight velocity for each point around the scan
No
Compute line of sight velocity for each point
Count rotations
Is there a change in altitude
No
Go to 350
320
Yes
Compute height above ground in feet
Set number of rotations to zero
Compute current time
Go to 310
Go to 170
Go to 320
Go to 301
Go to 350

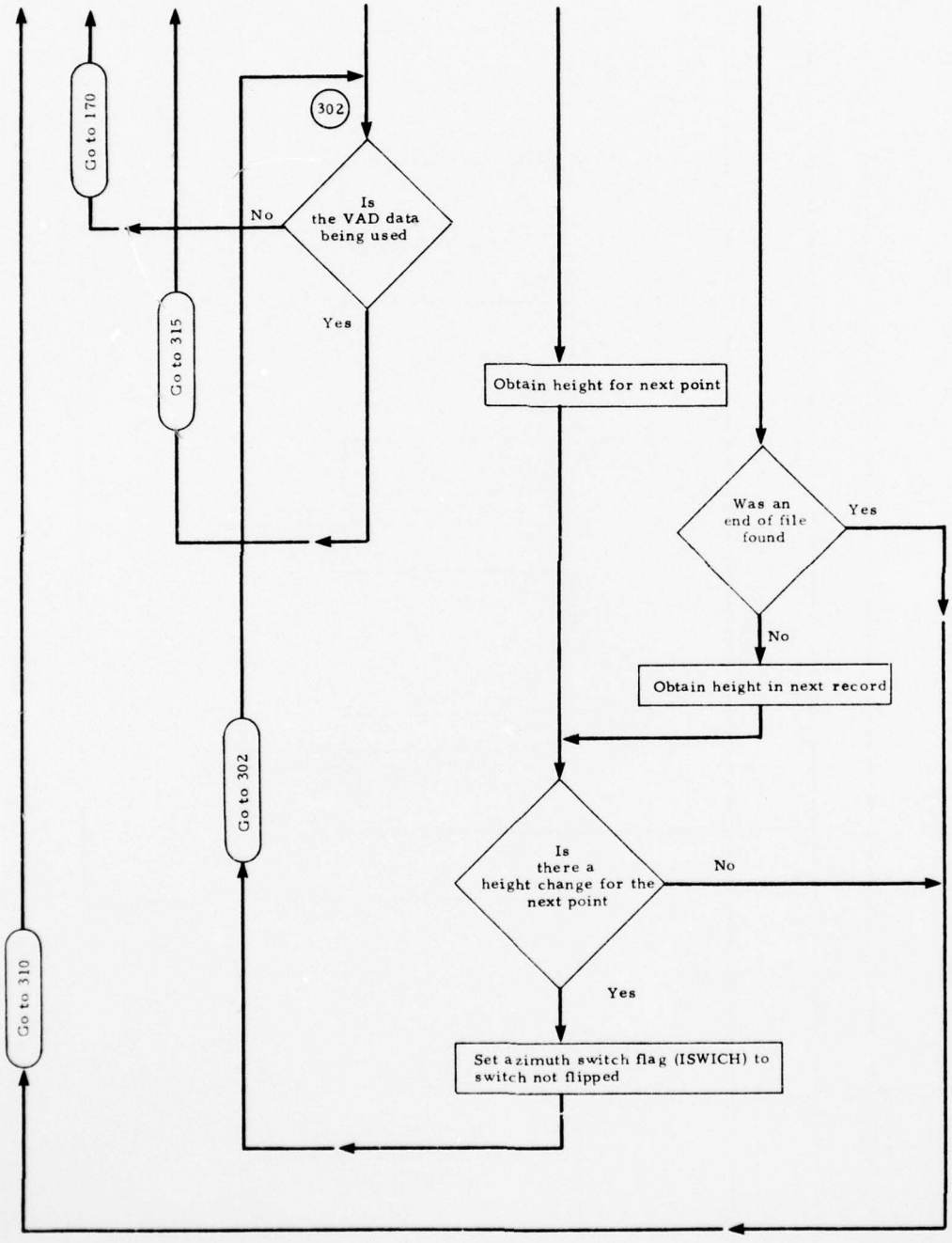

Go to 310
Go to 170
Go to 320
Did the last rotation have an altitude one meter different than the previous rotation
No
Yes
Count Altitude Changes
Save New Altitude
Is average and standard deviation wanted
Yes
Call STATA
Initialize averaging routine for current altitude
Go to 360
Set number of points for this rotation
Call HWPLOT
Plots VAD, Edits and filters VAD then replots
Is the translator operating or Is LFLIP=1 (LFLIP is input parameter)
No
Yes
Call WINDC
Computes wind from VAD using a peak algorithm
Is LFLIP equal zero
Yes
No
Go to 361
Is LFLIP equal two
Yes
No
Call SFLIP
FLIPS 180° of VAD data to simulate translator


Go to 310
Go to 170
Go to 320
Call WINDTR
Computes wind from VAD using Fourier coefficients and calls WINDSW to compute wind from VAD using a sine wave curve fit
Go to 350
Did the last rotation have an altitude one meter different than the previous rotation
Yes
No
Count rotations for this altitude (± 1 meter)
Set rotation count to one
Save running average of horizontal wind speed and direction and vertical wind speed for this altitude
Save for this altitude horizontal wind speed and direction vertical wind speed
Print the running averages
Is the number of rotations at this altitude equal to 180
Yes
No
Set rotation counter to zero
Is there a change in the direction of the altitude change
No
Go to 350
Yes
Go to 301
Was the last sequence of altitude steps shorter than the previous sequence
Yes
Go to 352
No
Set the number of wind altitudes equal to the number in the last sequence


Go to 310
Go to 170
Go to 320
Is the first altitude in the sequence greater than the last altitude in the sequence
Yes
371
Transfer wind data into an array for use by routine (WPROFL) put in ascending order
No
Transfer wind data into an array for use by routine WPROFL
Is a wind profile wanted
Yes
No
Call WPROFL
Computes power law wind profile
Are SC4020 plots wanted
Yes
No
Call PROFIL
Plots wind profile as a function of height
352
Transfer wind data in last sequence to first position in sequence for next sequence
Set altitude counter to one
350
Flag is set to indicate data is being used
Number of VAD points is set to zero
Go to 350
Go to 352
Go to 301

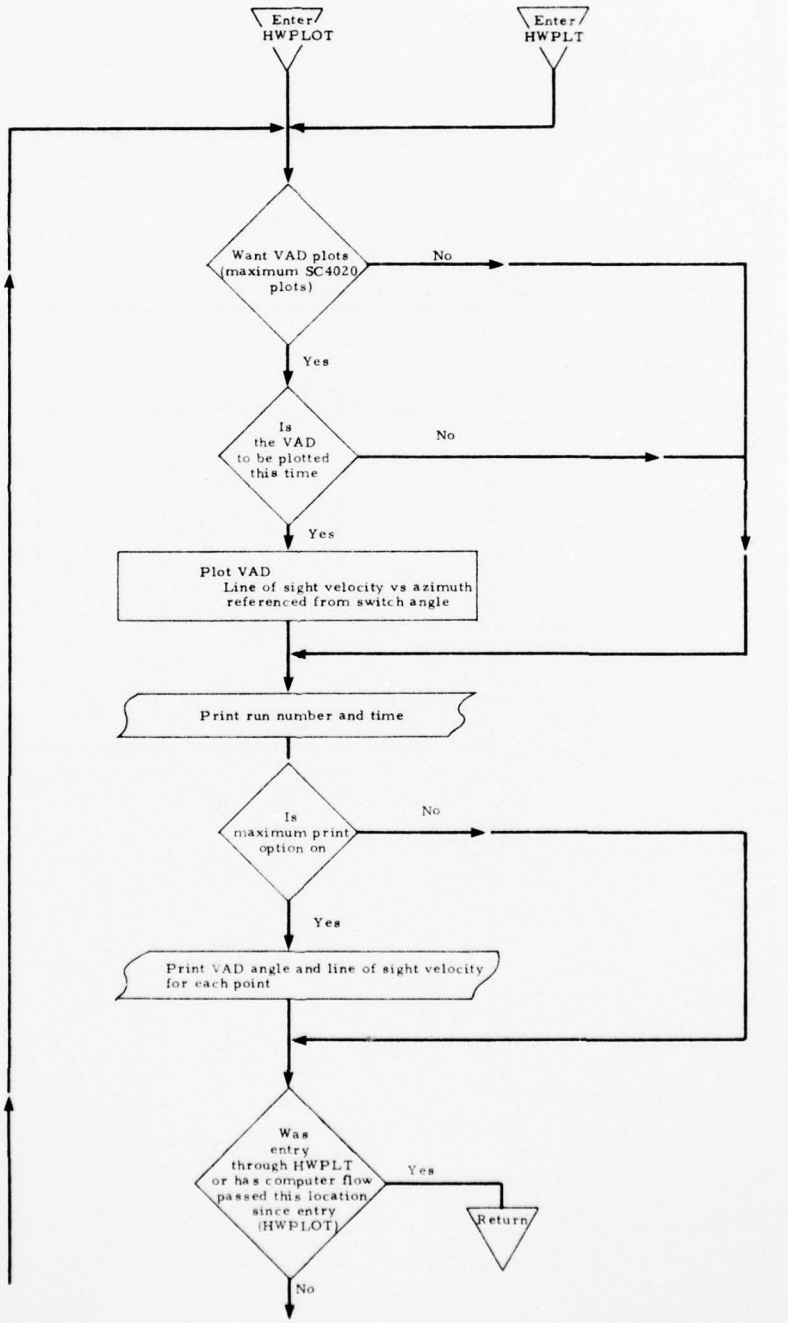

Go to 310
Number of nonzero points are set to zero
315
Count number of VAD points
Is number of VAD points greater than program dimension
No
Yes
Write Error Message "Too Many Conical Scan Points"
Was the last rotation at this height
Yes
No
Go to 320
Go to 170
Turn off flag indicating data is being used
Set number of VAD points to zero
Set flag to indicate "too many conical scan points"
Go to 315
Obtain frequency bin number of spectrum analyzer and save
Go to 301

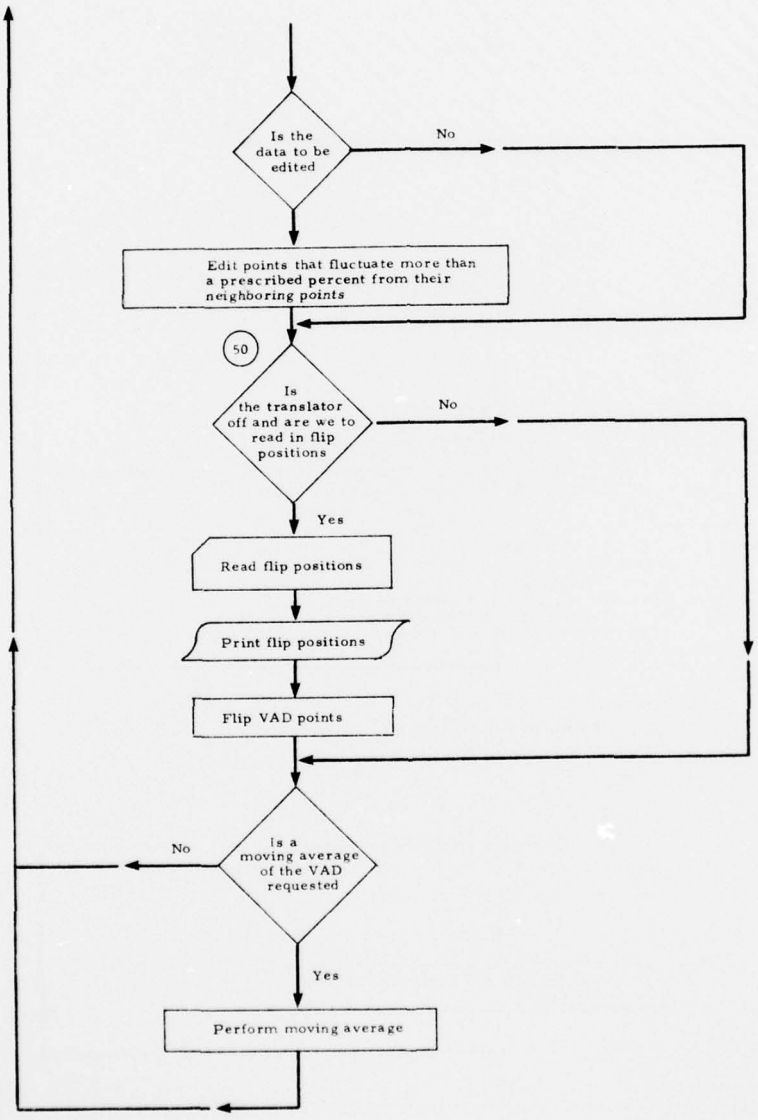

Is the frequency bin number less than 4
Yes
Set the frequency bin number to zero
No
Is the data acceptable flag off
Yes
Set the frequency bin number to zero
No
Is the frequency bin number greater than zero
Yes
Count non zero frequency bin number
No
Go to 315
Go to 170
Go to 310
Go to 301
301
Has the azimuth switch just flipped
Yes
No
Are we working on the last position on this tape record
Yes
No
Call TAPRD
To find if height jump in next record


Go to 170
302
Is the VAD data being used
No
Yes
Go to 315
Obtain height for next point
Was an end of file found
Yes
No
Obtain height in next record
Go to 302
Is there a height change for the next point
No
Yes
Go to 310
Set azimuth switch flag (ISWICH) to switch not flipped

ROUTINE HWPLOT

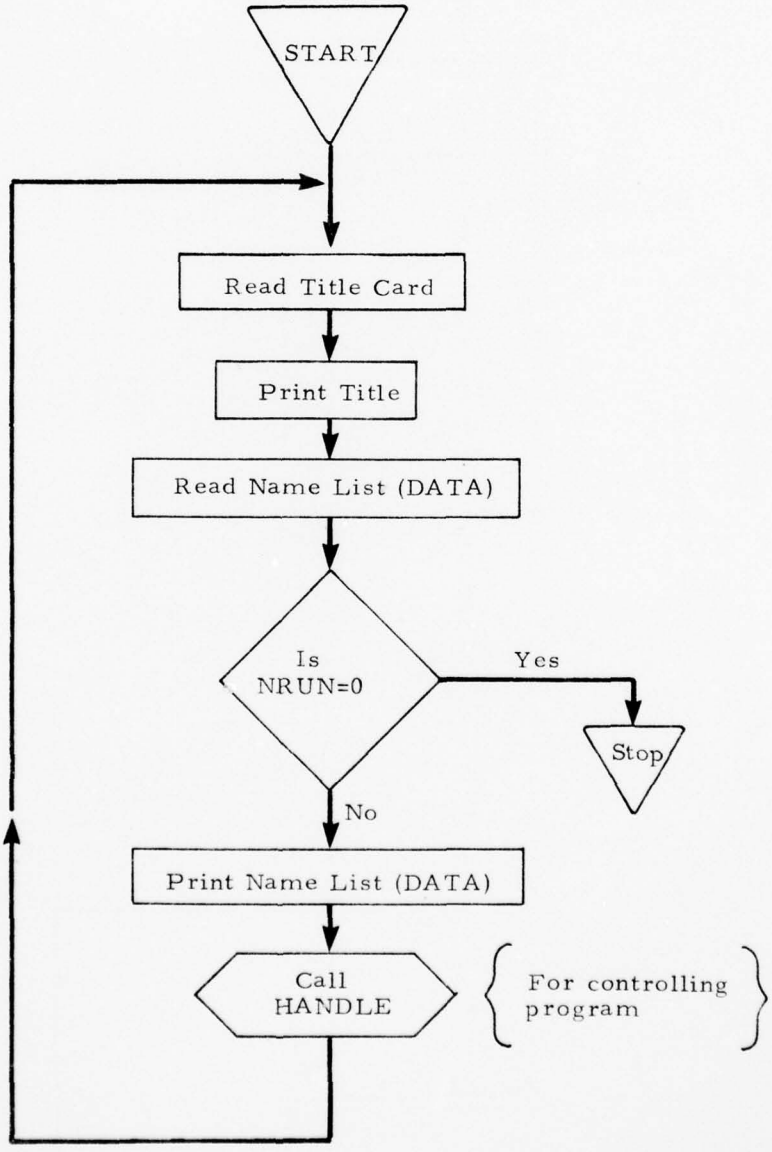
Plots VAD on SC4020 plotter
(Also edits and smooths data)




Is the data to be edited
No
Edit points that fluctuate more than a prescribed percent from their neighboring points
50
Is the translator off and are we to read in flip positions
No
Yes
Read flip positions
Print flip positions
Flip VAD points
Is a moving average of the VAD requested
No
Yes
Perform moving average

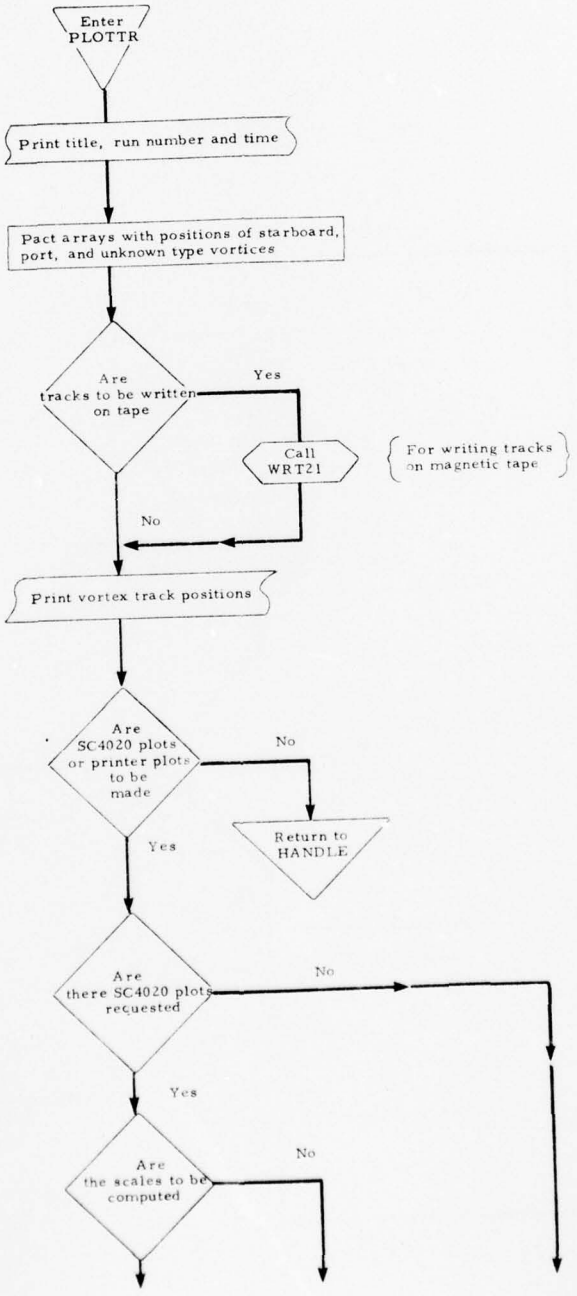
ROUTINE INPUT

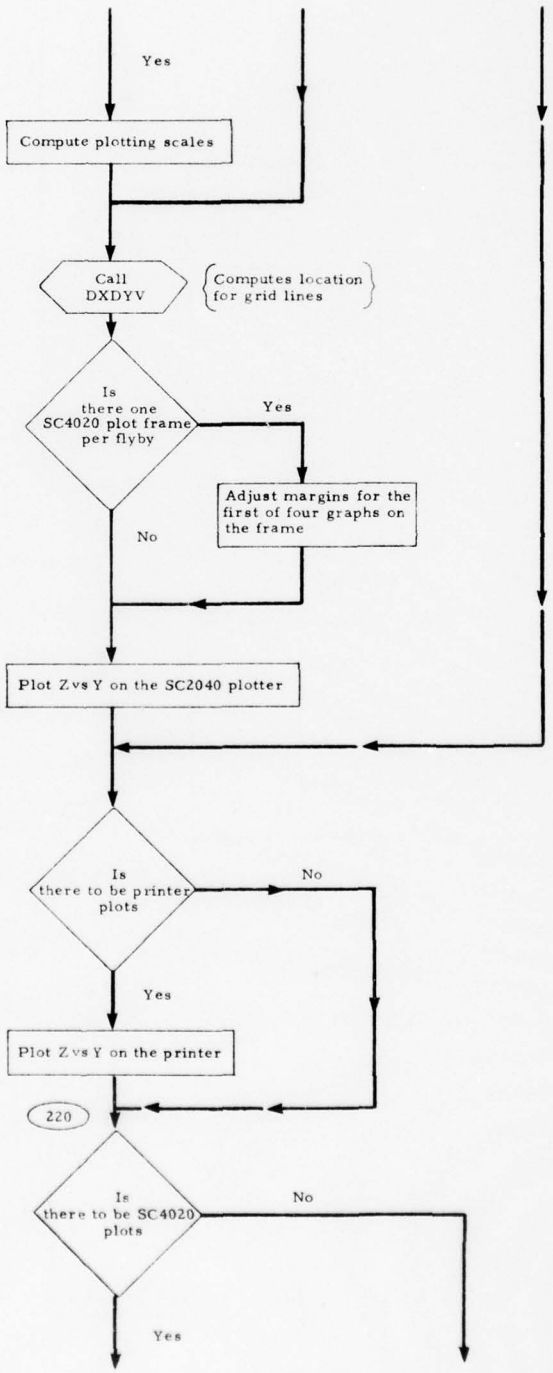
Read cards with parameters to direct program operation



ROUTINE PLOTTR

Plots vortex tracks on SC4020 plotter




Yes
Compute plotting scales
Call DXDYV
Computes location for grid lines
Is there one SC4020 plot frame per flyby
Yes
Adjust margins for the first of four graphs on the frame
No
Plot Z vs Y on the SC2040 plotter
Is there to be printer plots
No
Yes
Plot Z vs Y on the printer
220
Is there to be SC4020 plots
No
Yes

AD-A044 318 LOCKHEED MISSILES AND SPACE CO INC HUNTSVILLE ALA HU--ETC F/G 14/2
MOBILE LASER DOPPLER SYSTEM CHECKOUT AND CALIBRATION. VOLUME II--ETC(U)
JUN 77 M R BRASHEARS, T R LAWRENCE, A D ZALAY DOT-TSC-1098-2

UNCLASSIFIED LMSC-HREC-TR-D497036-2 FAA-RD-77-48.2 NL

4 OF 4
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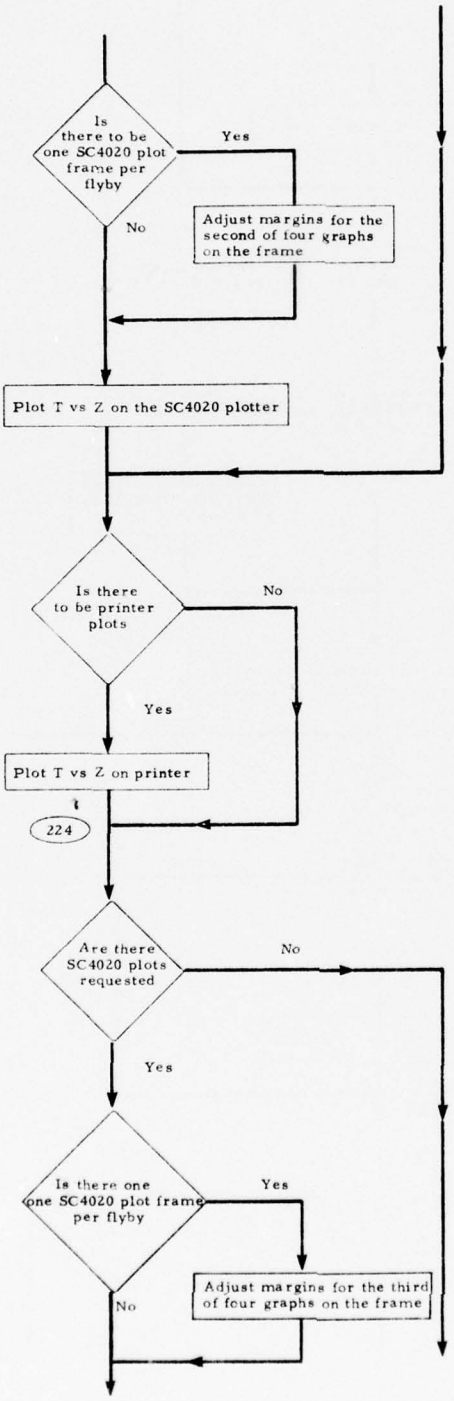
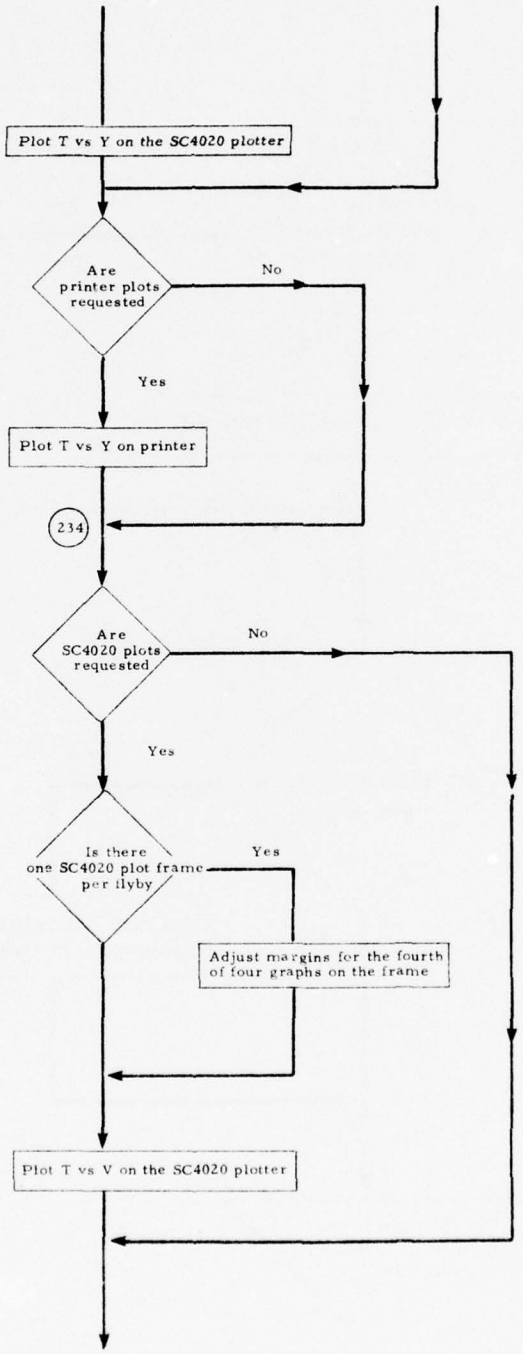
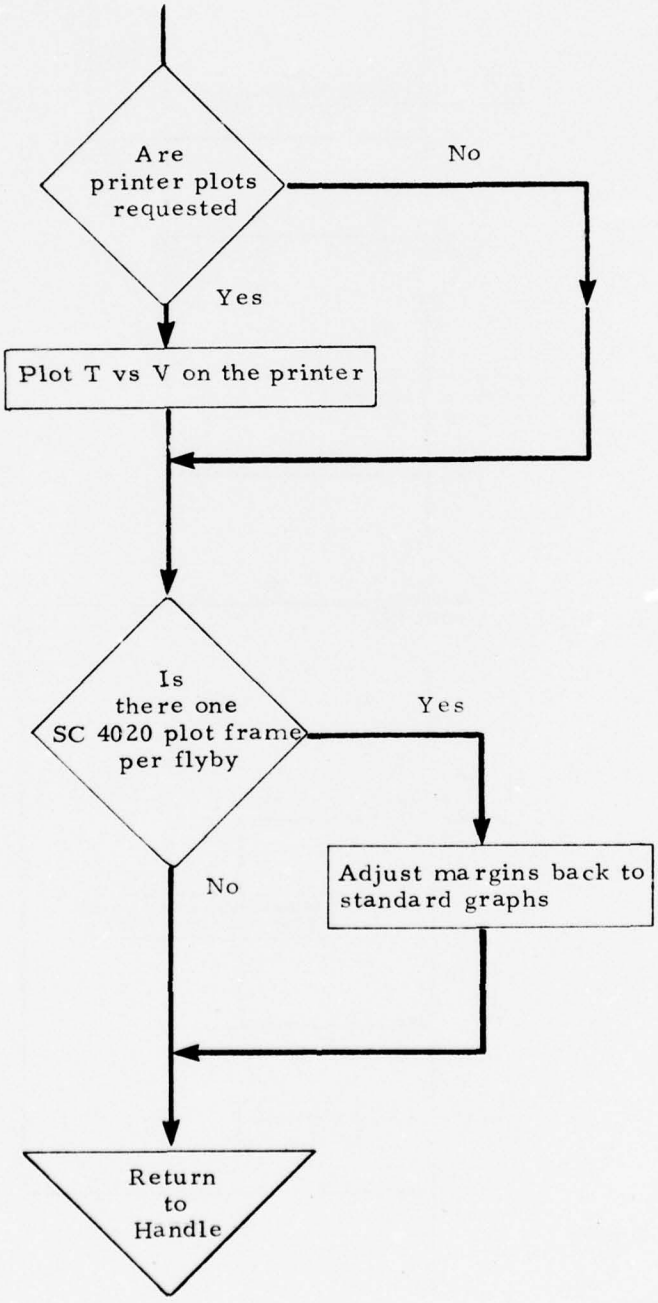
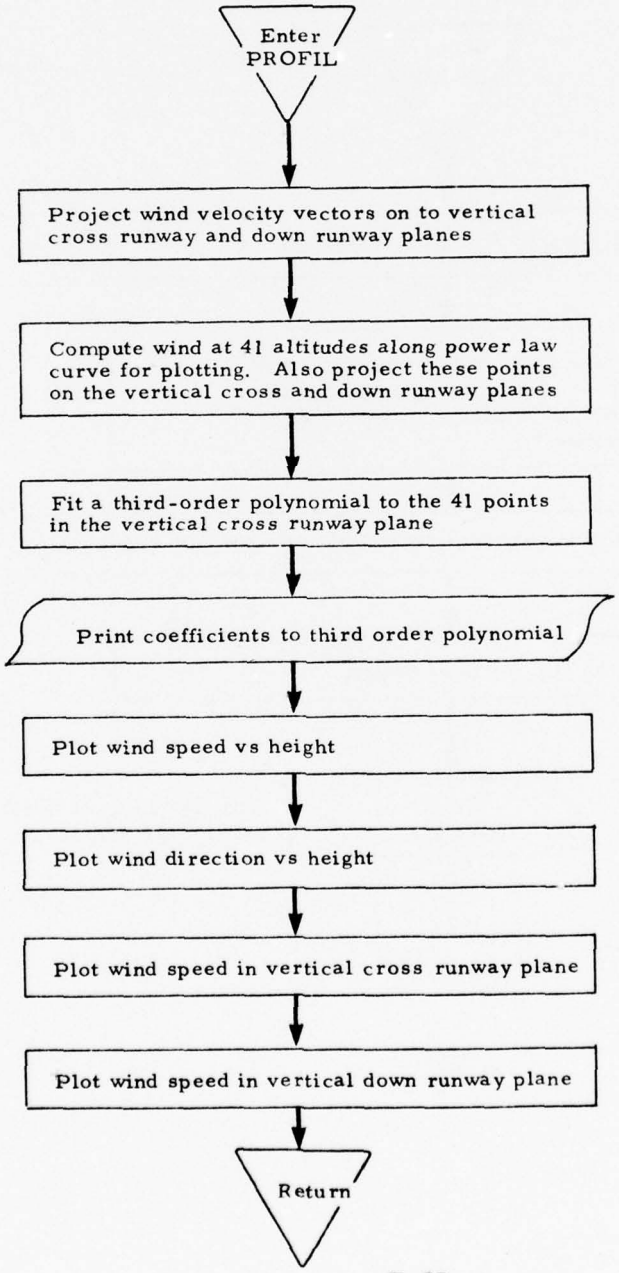

Is there to be one SC4020 plot frame per flyby
Yes
No
Adjust margins for the second of four graphs on the frame
Plot T vs Z on the SC4020 plotter
Is there to be printer plots
No
Yes
Plot T vs Z on printer
224
Are there SC4020 plots requested
No
Yes
Is there one one SC4020 plot frame per flyby
Yes
No
Adjust margins for the third of four graphs on the frame


Plot T vs Y on the SC4020 plotter
Are printer plots requested
No
Yes
Plot T vs Y on printer
234
Are SC4020 plots requested
No
Yes
Is there one SC4020 plot frame per flyby
Yes
Adjust margins for the fourth of four graphs on the frame
Plot T vs V on the SC4020 plotter


Are printer plots requested
No
Yes
Plot T vs V on the printer
Is there one SC 4020 plot frame per flyby
Yes
No
Adjust margins back to standard graphs
Return to Handle

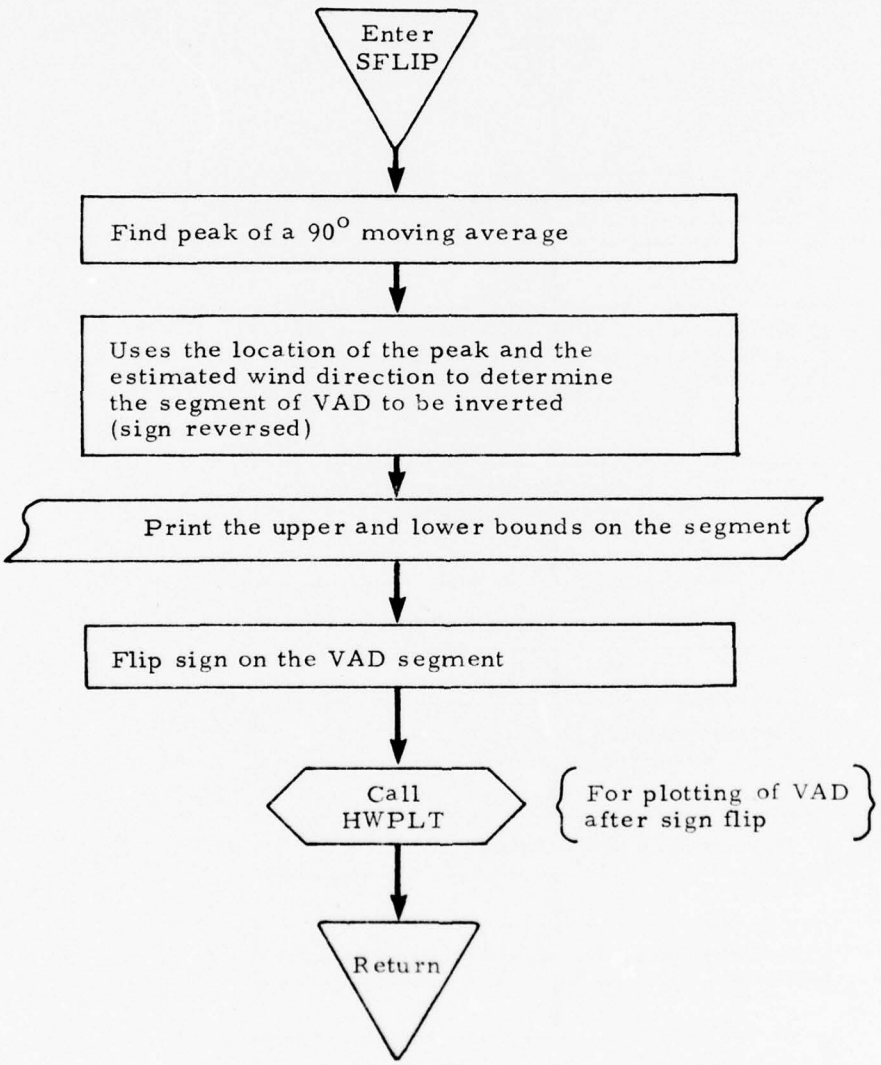
ROUTINE PROFIL

Plots wind profile as a function of height on the SC4020 plotter



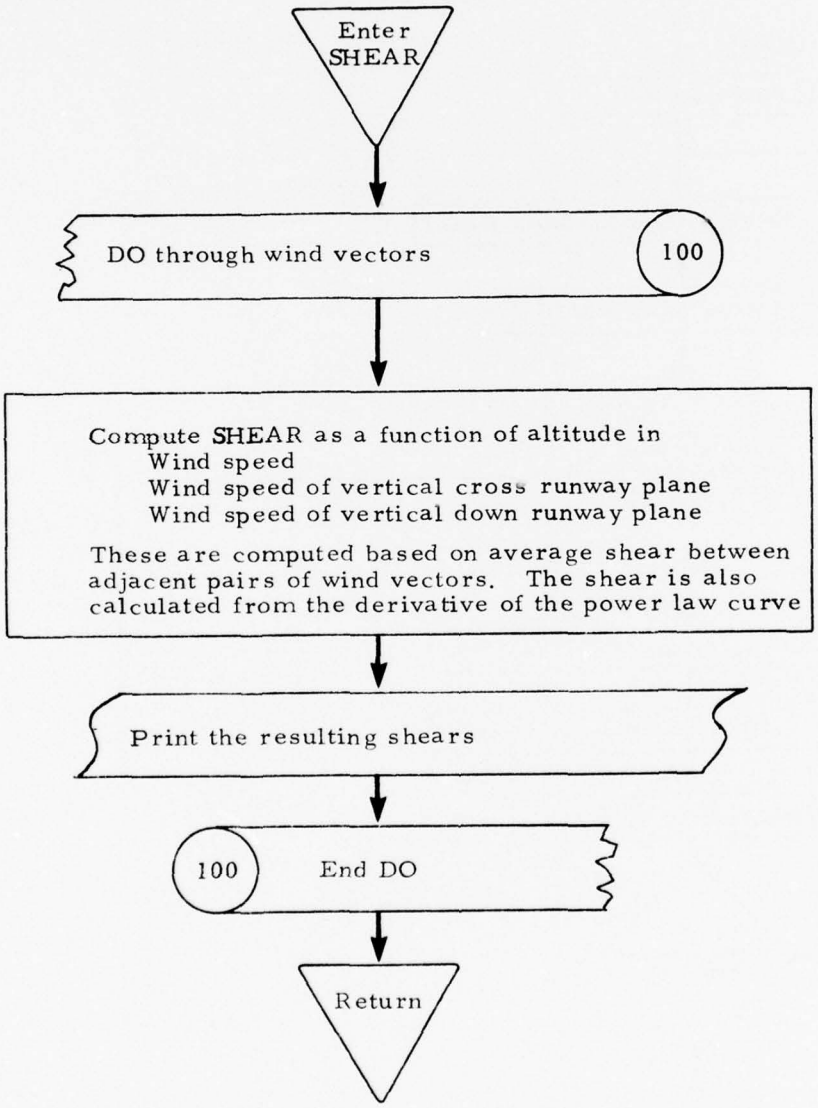
ROUTINE SFLIP

Flips sign of speed of VAD to simulate translator

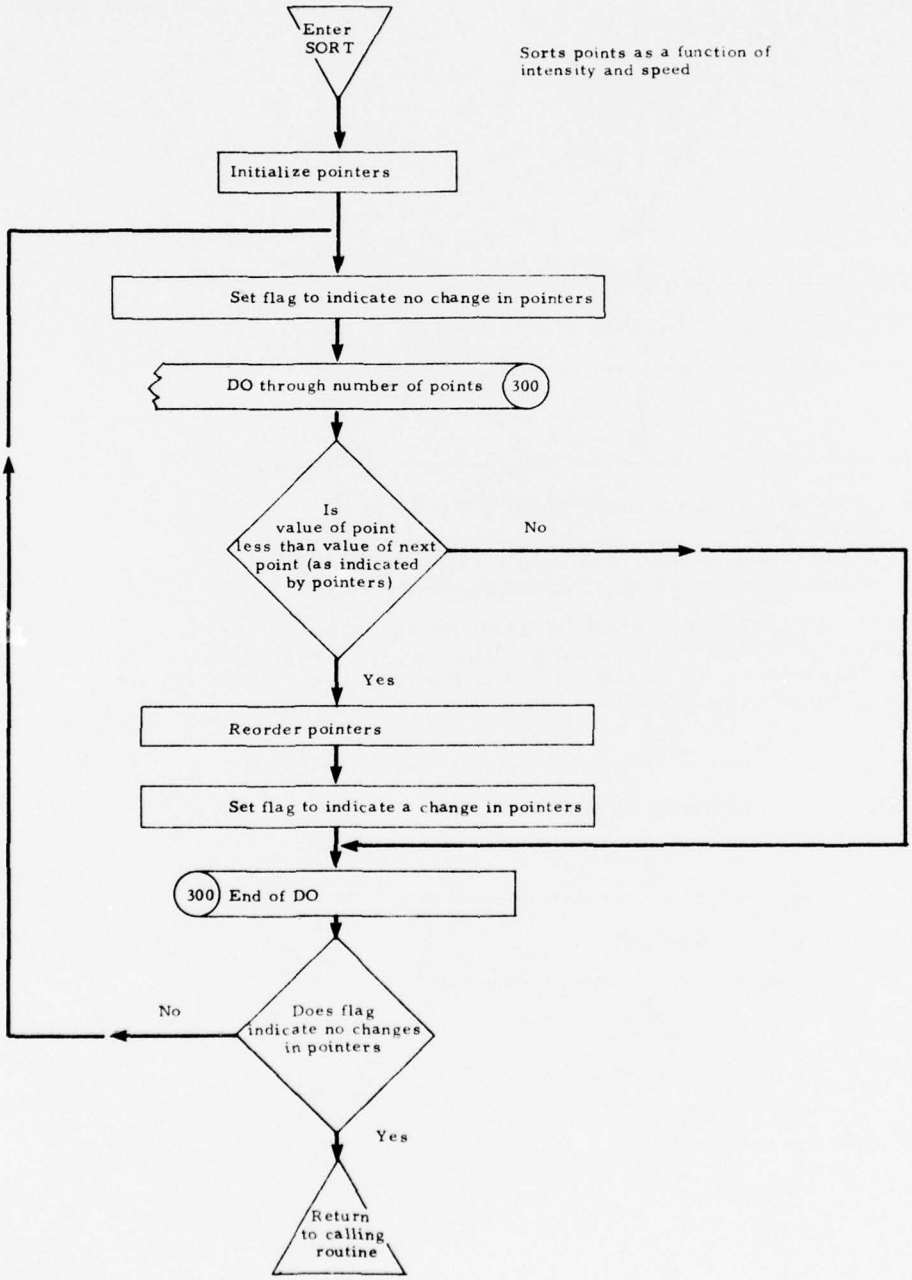


ROUTINE SHEAR

Computes and prints wind shear

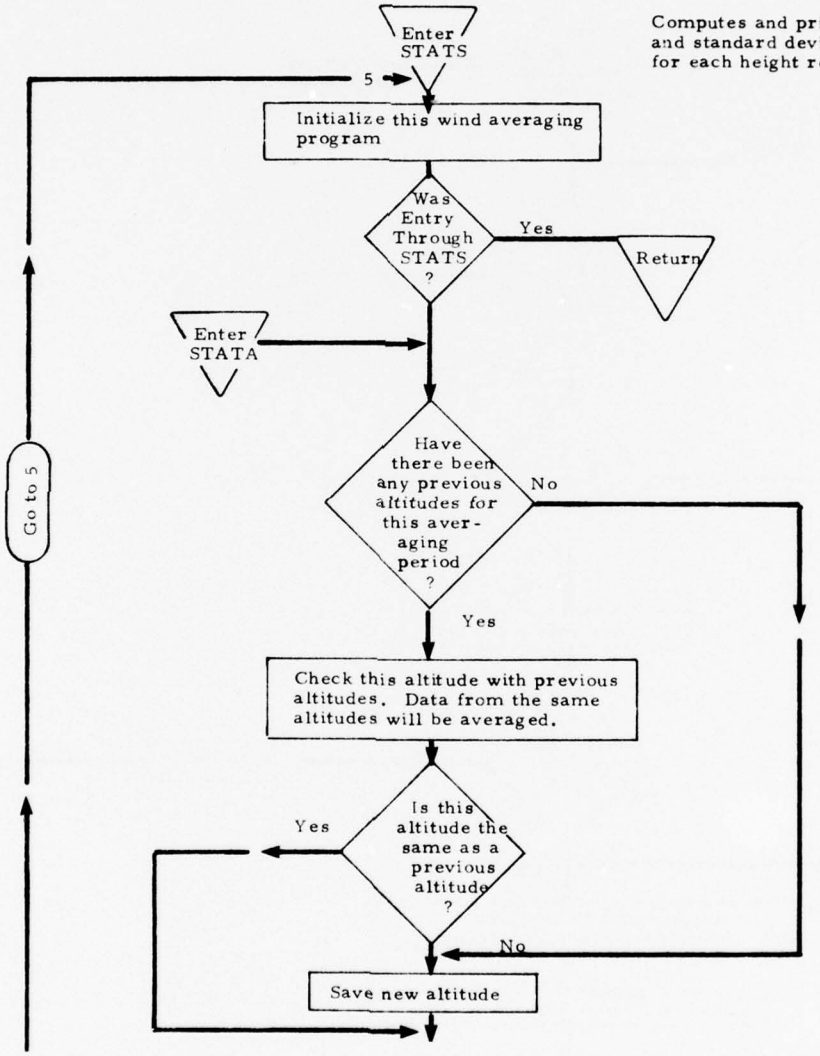


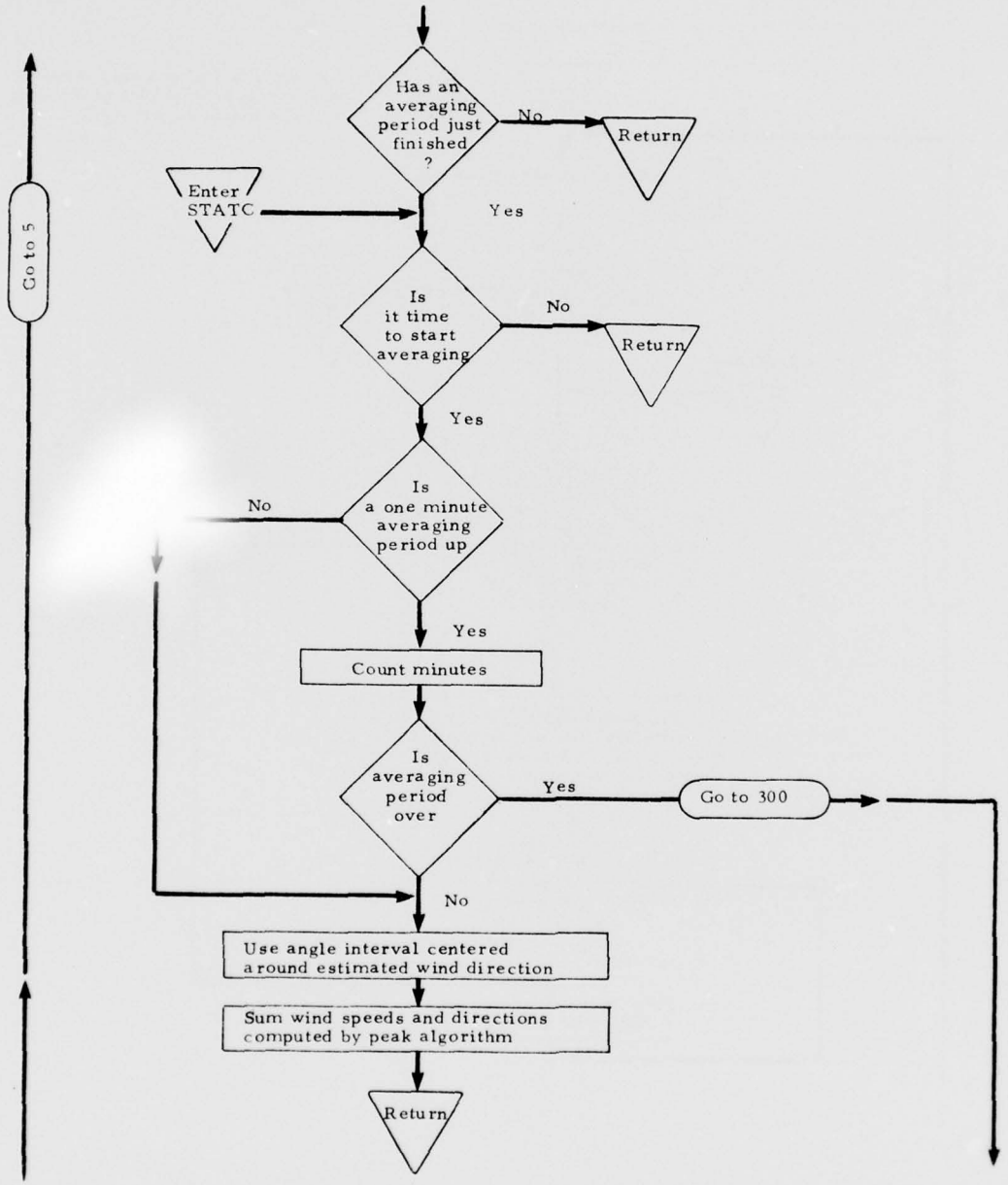
ROUTINE SORT

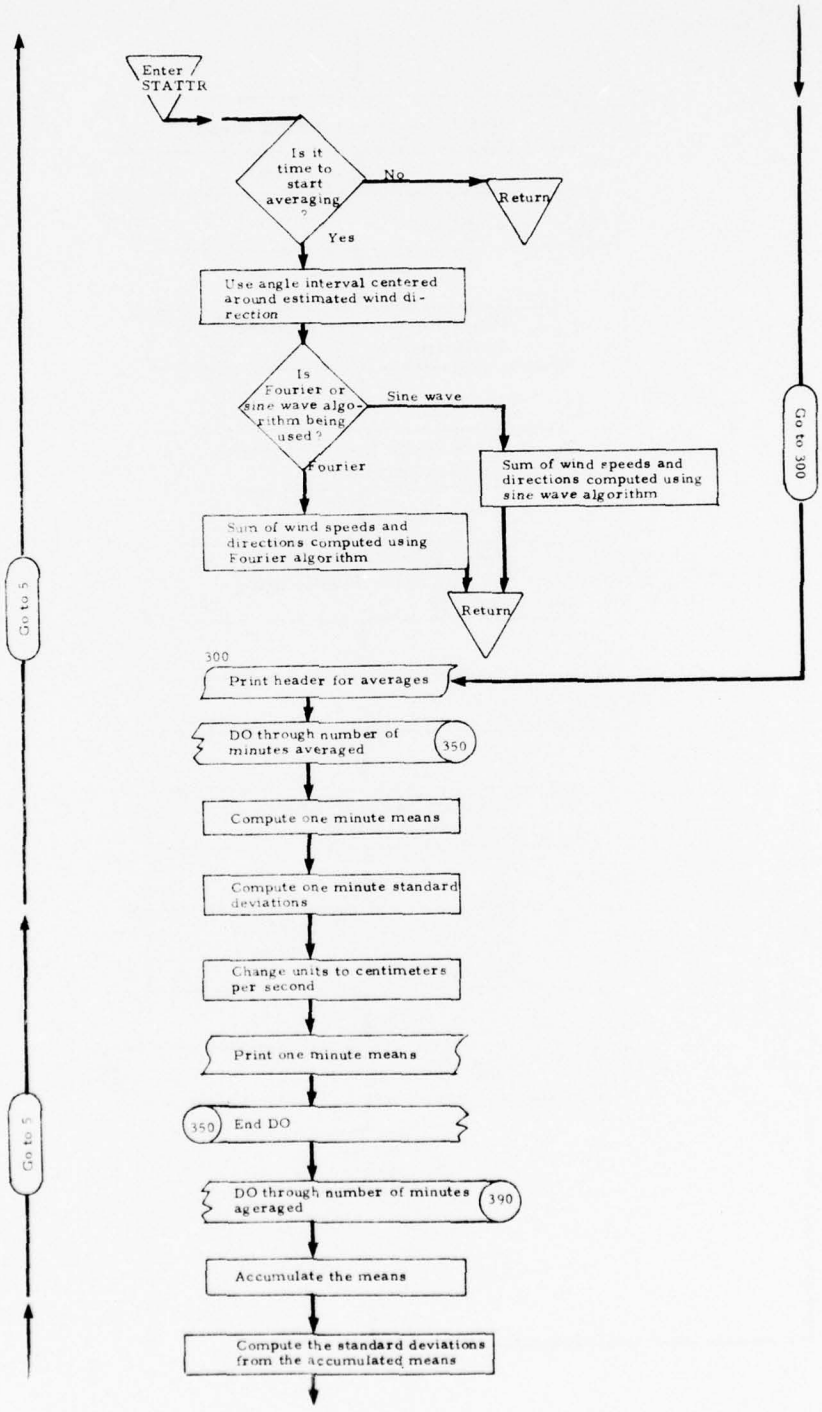


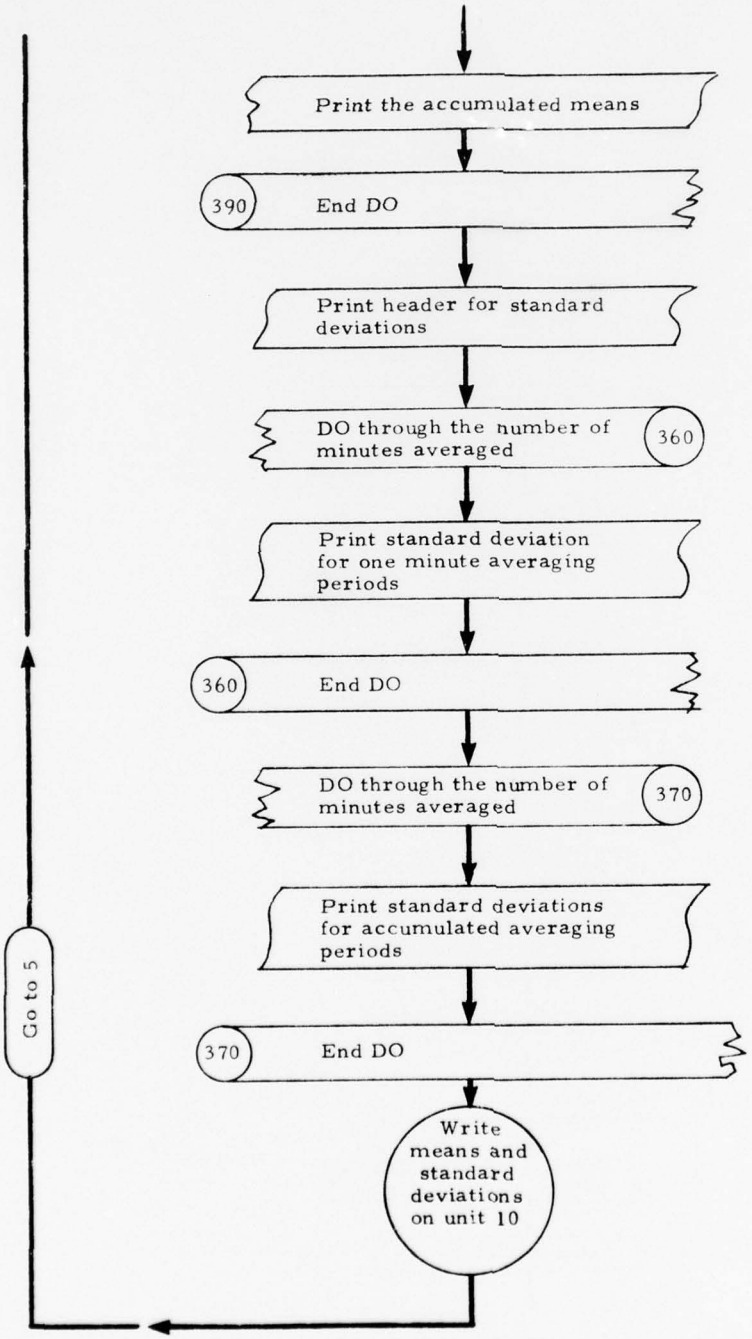
ROUTINE STATS

Computes and prints the averages and standard deviations of the wind for each height represented

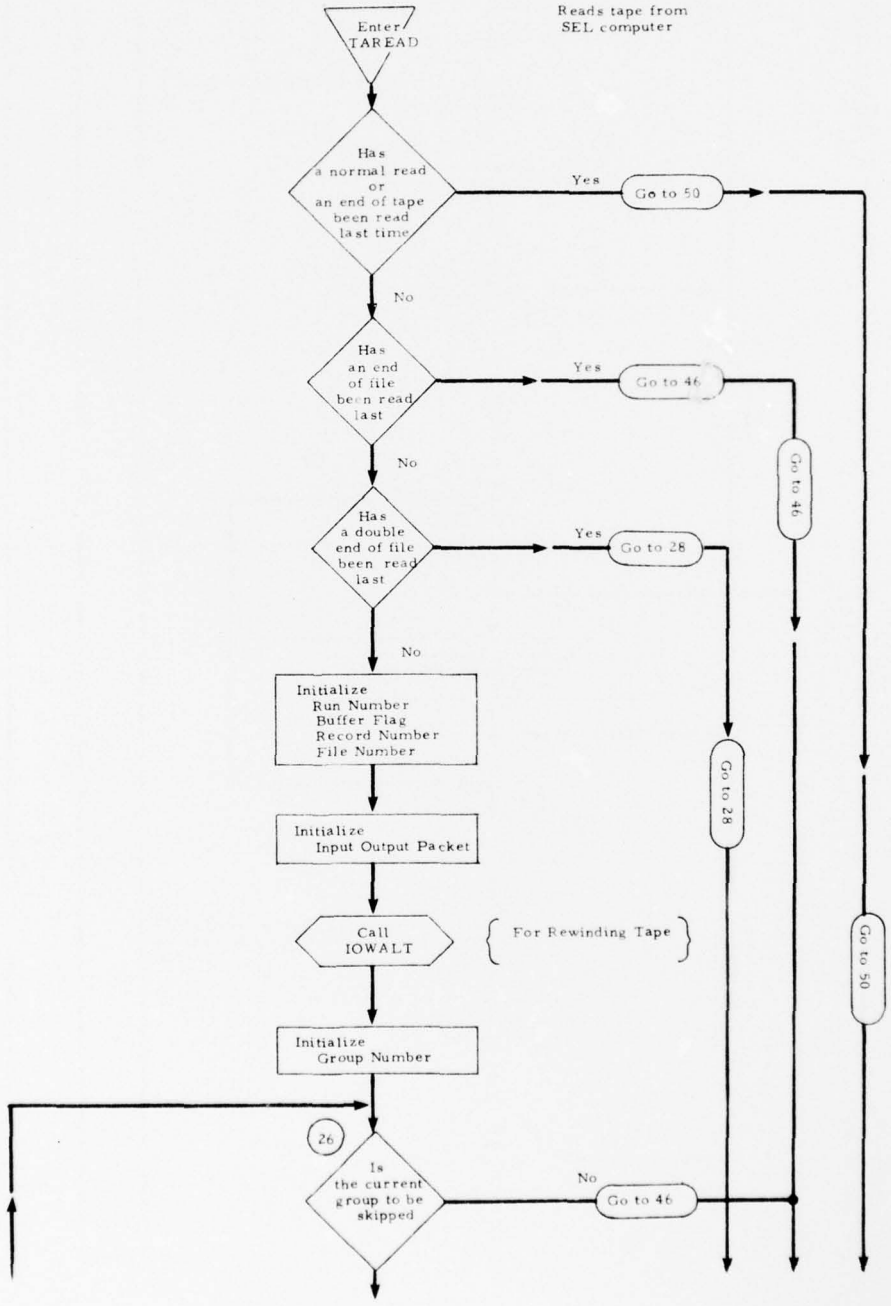


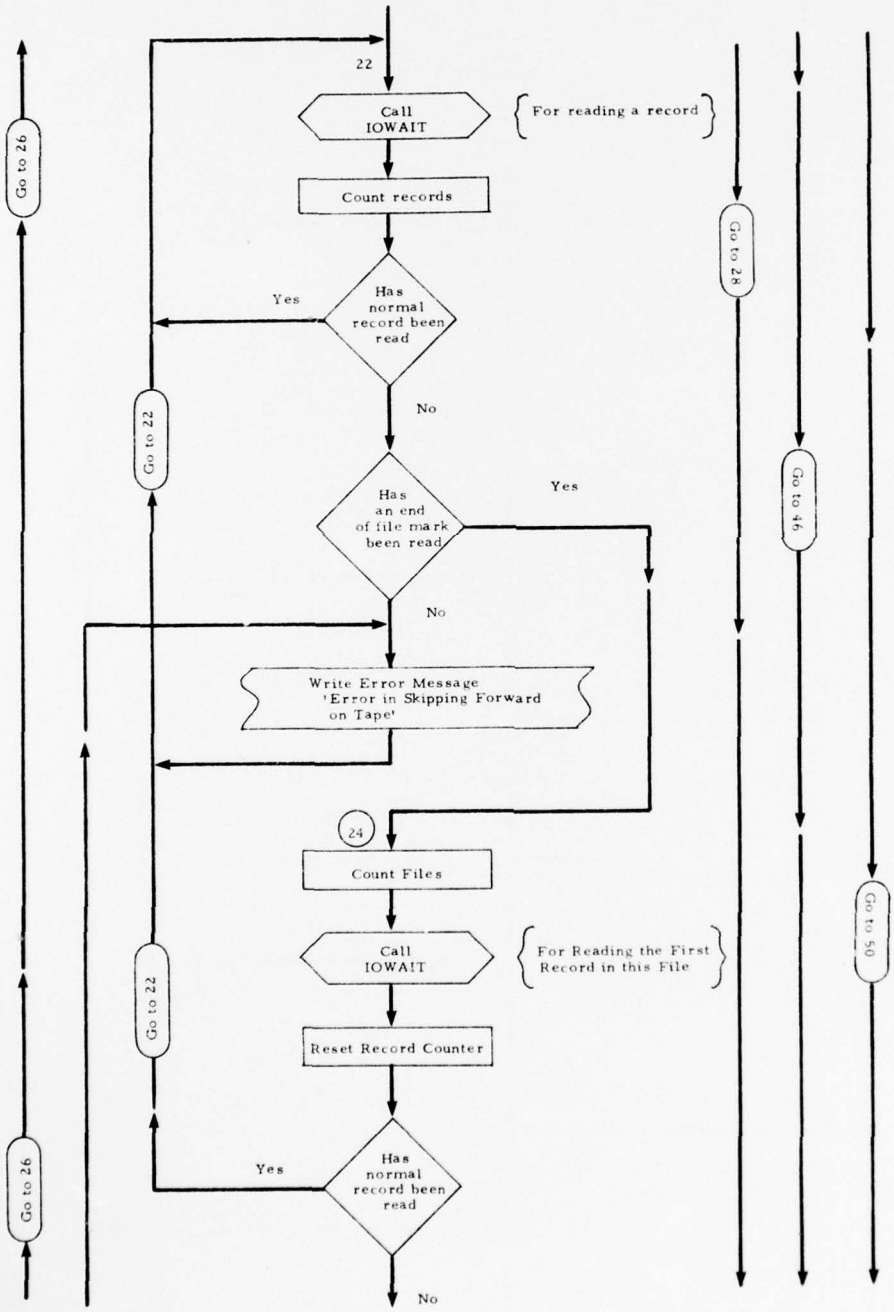

Go to 5
Has an averaging period just finished ?
No
Return
Enter STATC
Yes
Is it time to start averaging
No
Return
Yes
Is a one minute averaging period up
No
Yes
Count minutes
Is averaging period over
Yes
Go to 300
No
Use angle interval centered around estimated wind direction
Sum wind speeds and directions computed by peak algorithm
Return

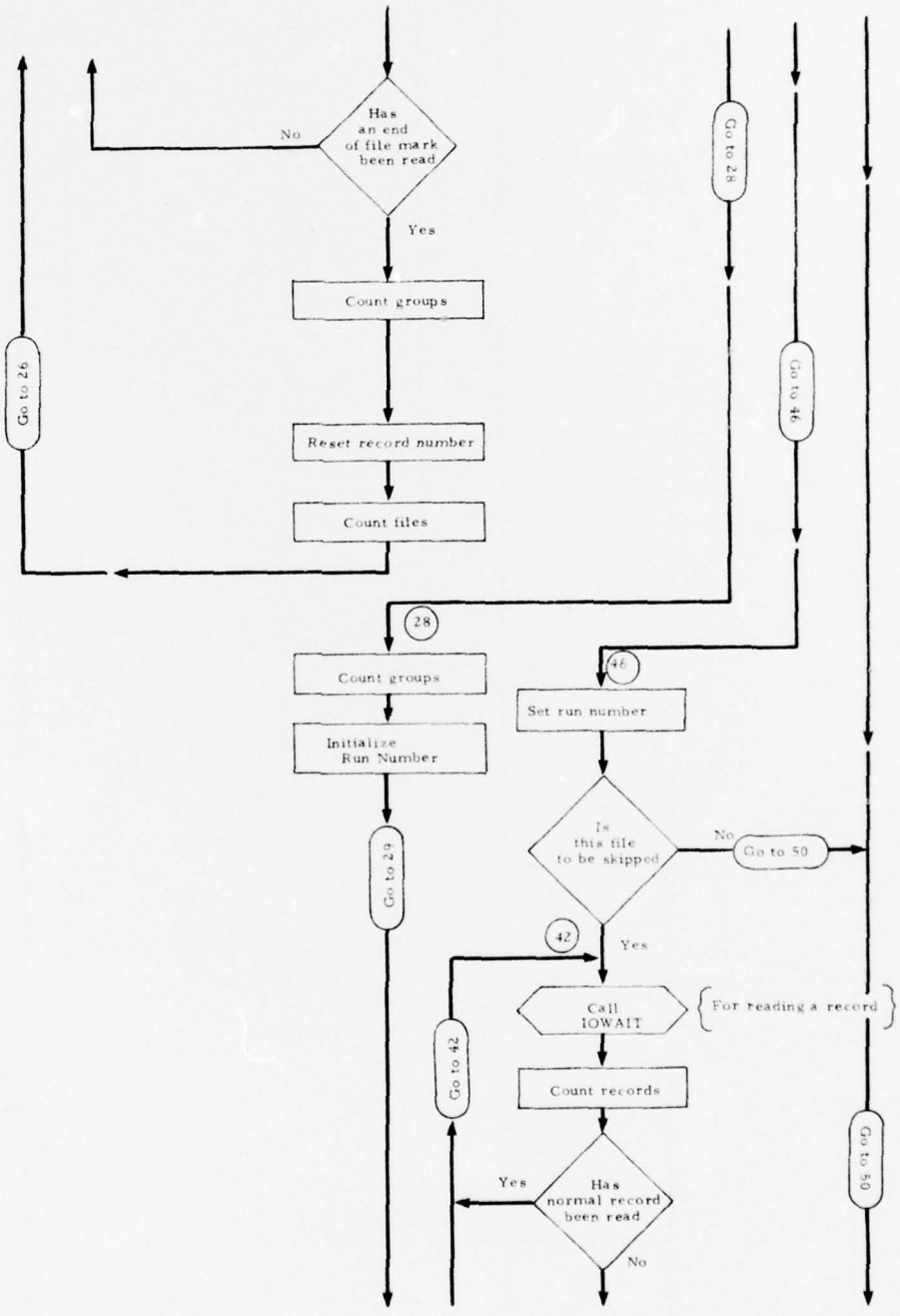

Enter STATTR
Is it time to start averaging ?
No
Return
Yes
Use angle interval centered around estimated wind direction
Is Fourier or sine wave algorithm being used ?
Sine wave
Fourier
Sum of wind speeds and directions computed using sine wave algorithm
Sum of wind speeds and directions computed using Fourier algorithm
Return
Go to 5
Go to 300
300
Print header for averages
DO through number of minutes averaged
350
Compute one minute means
Compute one minute standard deviations
Change units to centimeters per second
Print one minute means
350
End DO
DO through number of minutes ageraged
390
Accumulate the means
Compute the standard deviations from the accumulated means
Go to 5

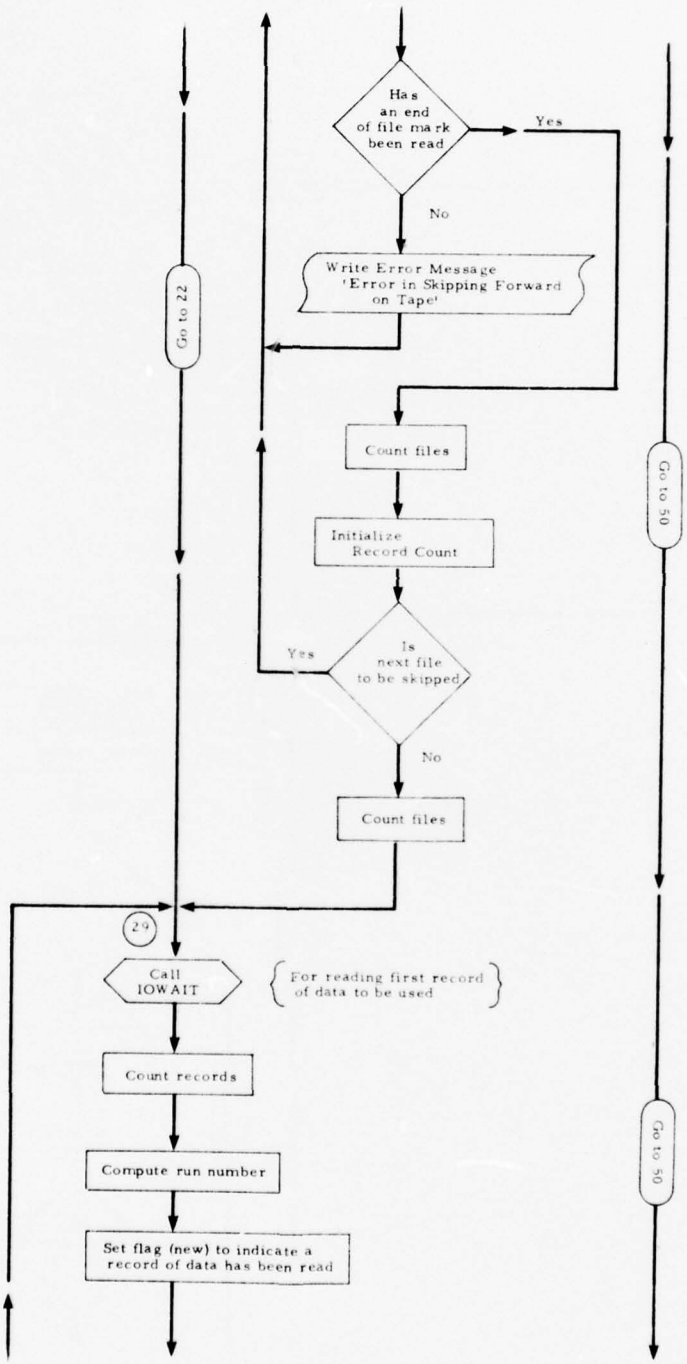

Print the accumulated means
390
End DO
Print header for standard deviations
DO through the number of minutes averaged
360
Print standard deviation for one minute averaging periods
360
End DO
DO through the number of minutes averaged
370
Print standard deviations for accumulated averaging periods
370
End DO
Write means and standard deviations on unit 10
Go to 5

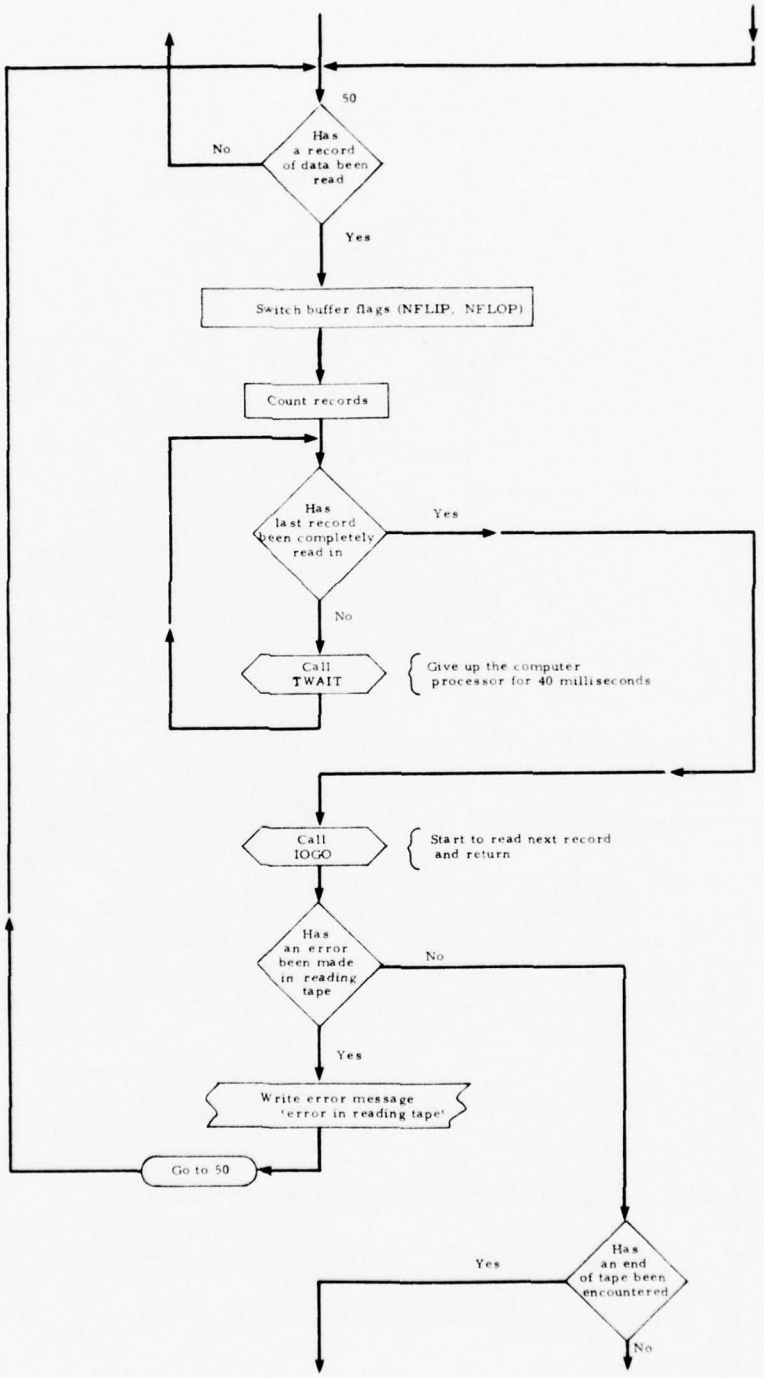
ROUTINE TAREAD

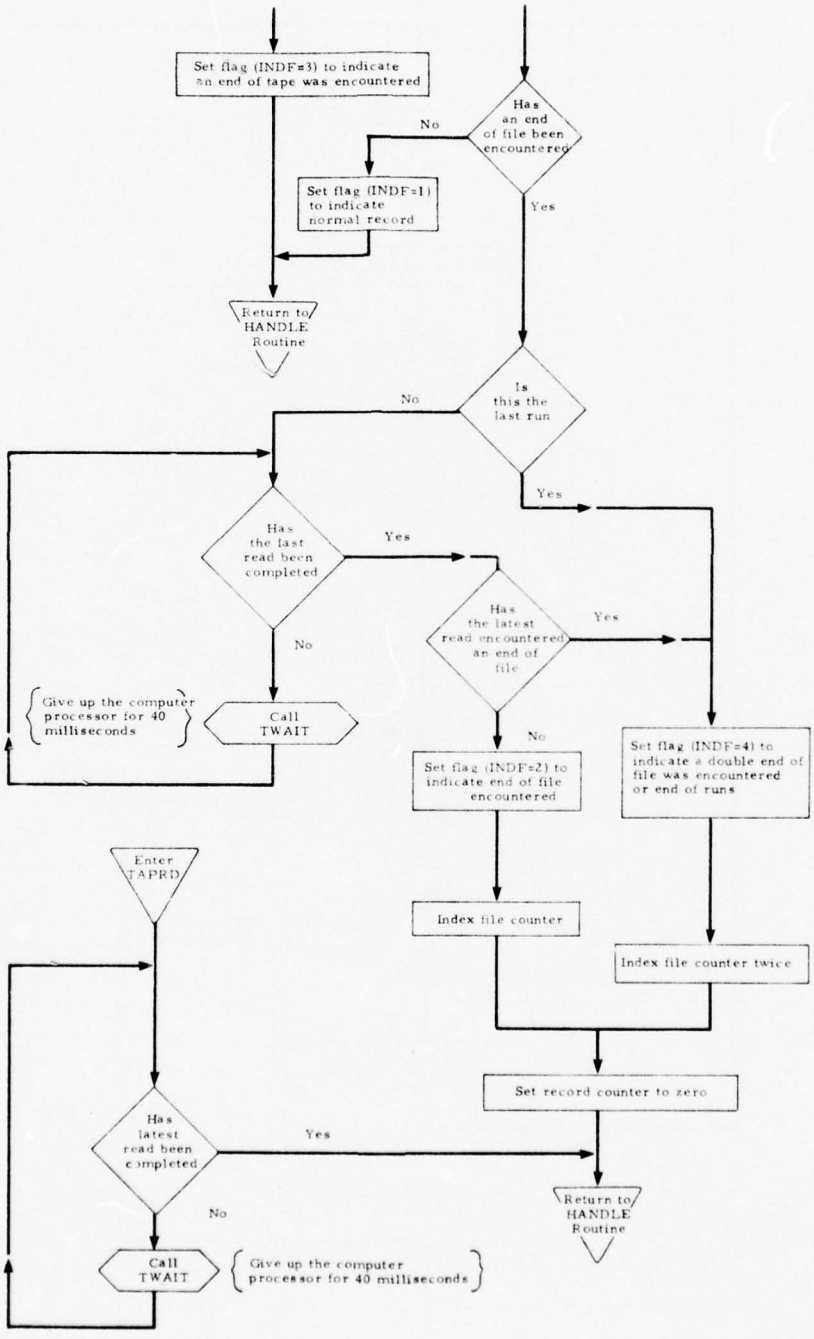



22
Call IOWAIT
For reading a record
Count records
Has normal record been read
Yes
No
Has an end of file mark been read
Yes
No
Write Error Message 'Error in Skipping Forward on Tape'
24
Count Files
Call IOWAIT
For Reading the First Record in this File
Reset Record Counter
Has normal record been read
Yes
No
Go to 26
Go to 22
Go to 22
Go to 26
Go to 28
Go to 46
Go to 50


Has an end of file mark been read
No
Yes
Count groups
Reset record number
Count files
Go to 26
Go to 28
Go to 46
28
Count groups
Initialize Run Number
Go to 29
46
Set run number
Is this file to be skipped
No
Go to 50
42
Yes
Call IOWAIT
For reading a record
Count records
Has normal record been read
Yes
No
Go to 42
Go to 50

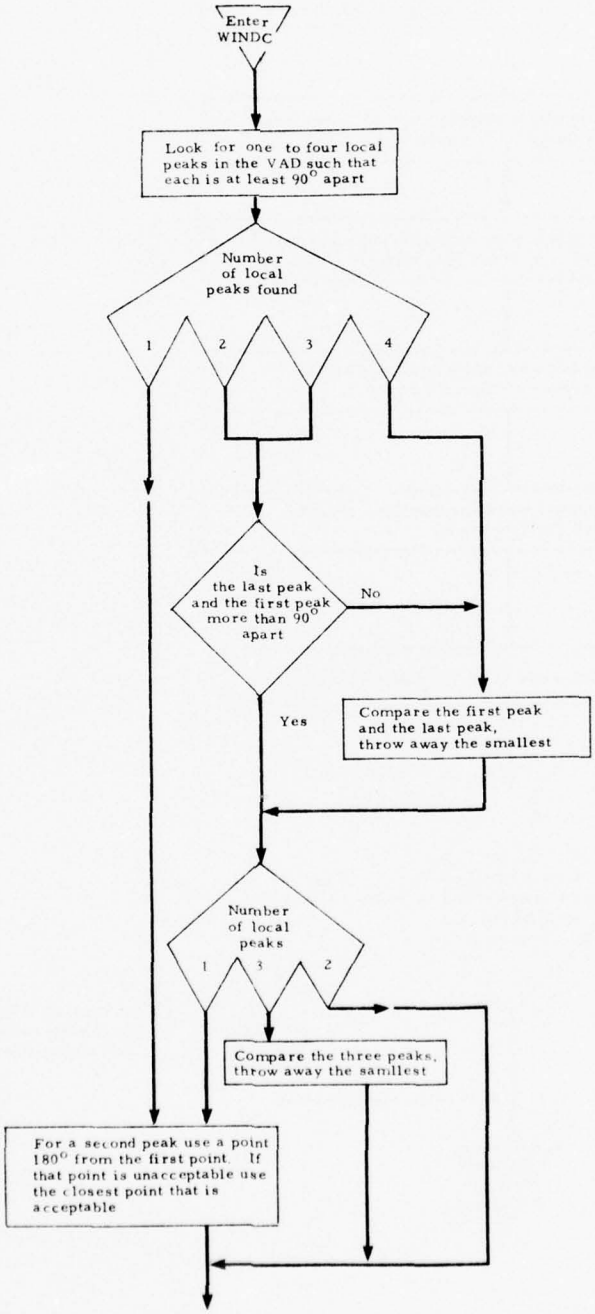

Has an end of file mark been read
Yes
No
Write Error Message 'Error in Skipping Forward on Tape'
Go to 22
Count files
Initialize Record Count
Is next file to be skipped
Yes
No
Count files
Go to 50
29
Call IOWAIT
For reading first record of data to be used
Count records
Compute run number
Set flag (new) to indicate a record of data has been read
Go to 50

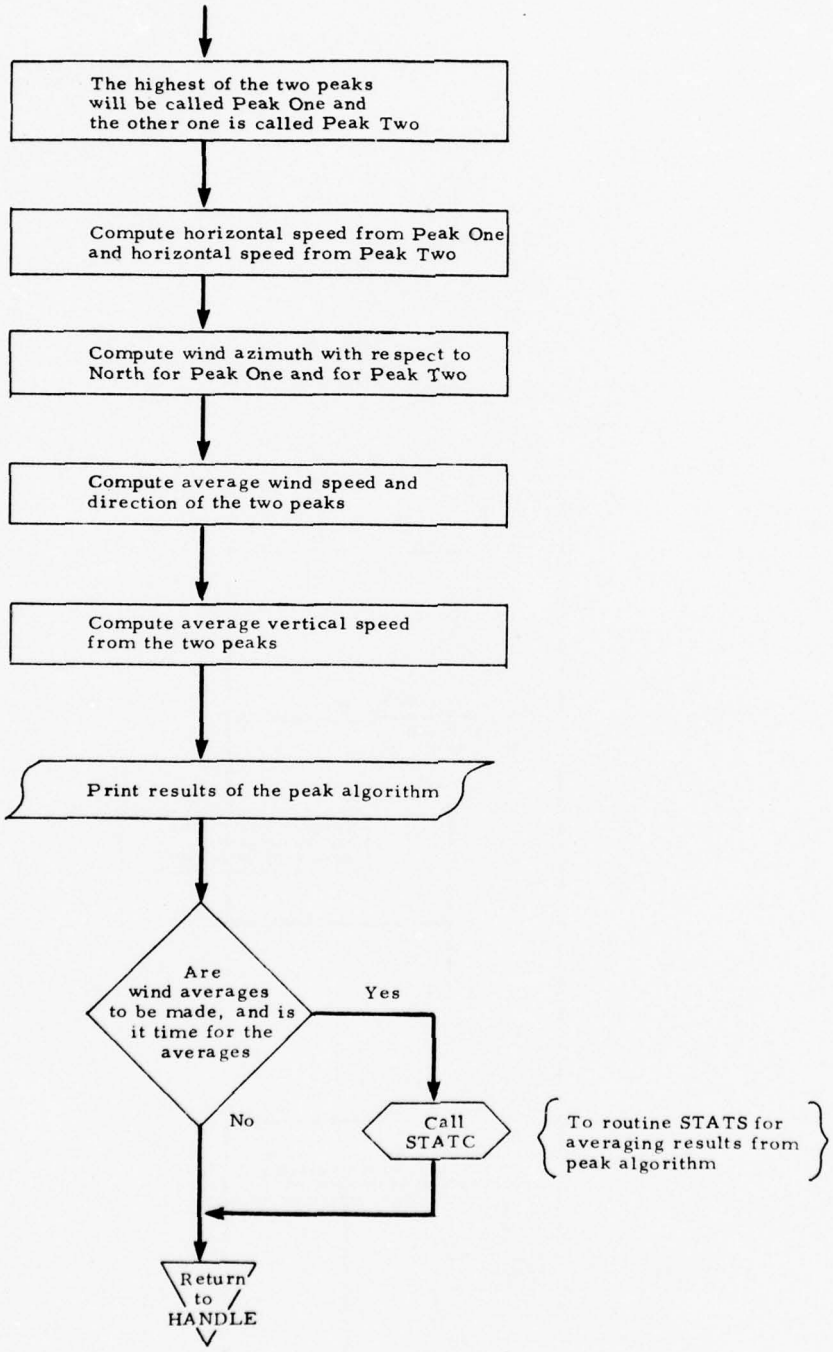

50
Has a record of data been read
No
Yes
Switch buffer flags (NFLIP, NFLOP)
Count records
Has last record been completely read in
Yes
No
Call TWAIT
Give up the computer processor for 40 milliseconds
Call IOGO
Start to read next record and return
Has an error been made in reading tape
No
Yes
Write error message 'error in reading tape'
Go to 50
Has an end of tape been encountered
Yes
No


Set flag (INDF=3) to indicate an end of tape was encountered
Has an end of file been encountered
No
Yes
Set flag (INDF=1) to indicate normal record
Return to HANDLE Routine
Is this the last run
No
Yes
Has the last read been completed
Yes
No
Has the latest read encountered an end of file
Yes
Give up the computer processor for 40 milliseconds
Call TWAIT
No
Set flag (INDF=2) to indicate end of file encountered
Set flag (INDF=4) to indicate a double end of file was encountered or end of runs
Enter TAPRD
Index file counter
Index file counter twice
Set record counter to zero
Has latest read been completed
Yes
No
Return to HANDLE Routine
Call TWAIT
Give up the computer processor for 40 milliseconds

ROUTINE WINDC

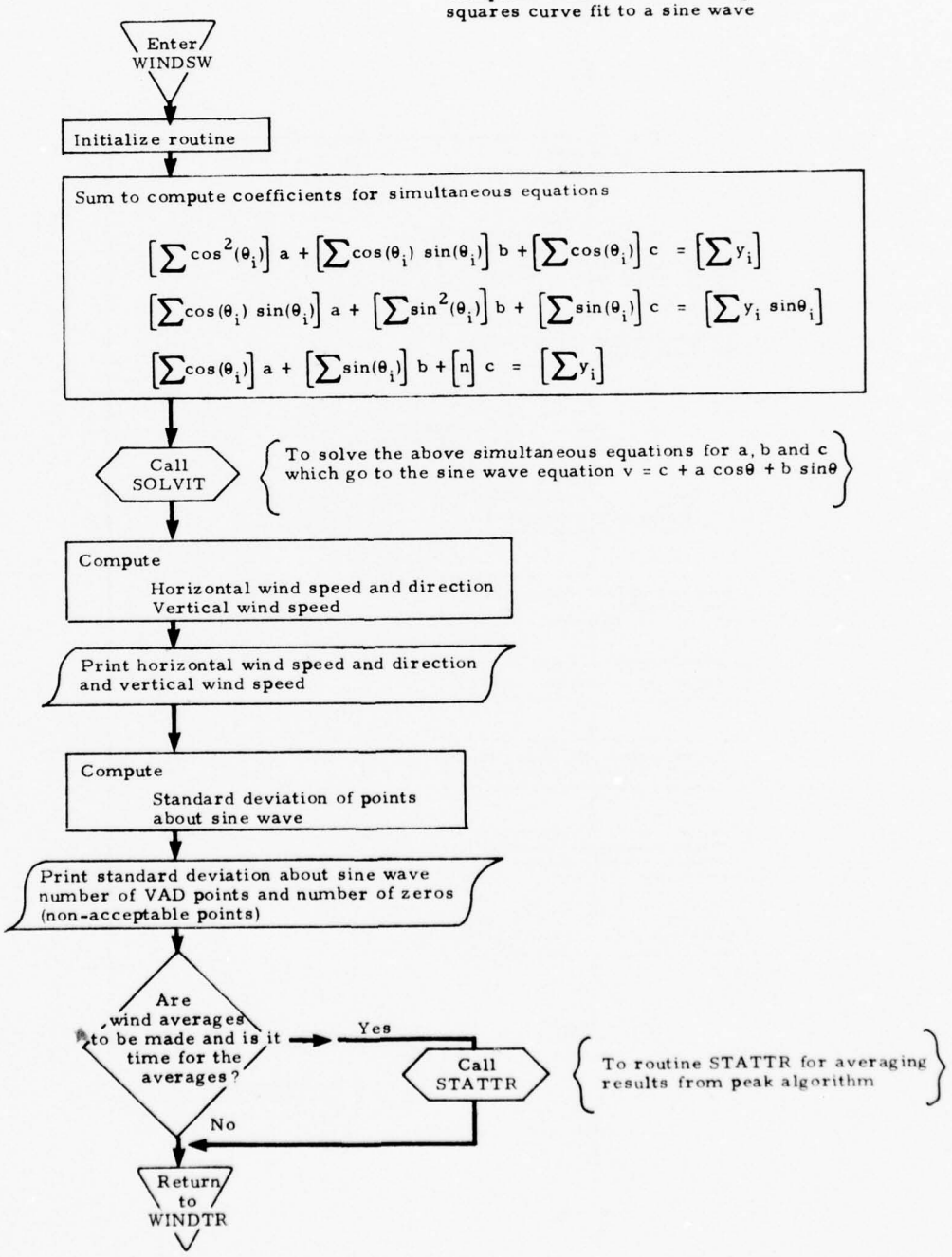
Computes wind from VAD using peak algorithm

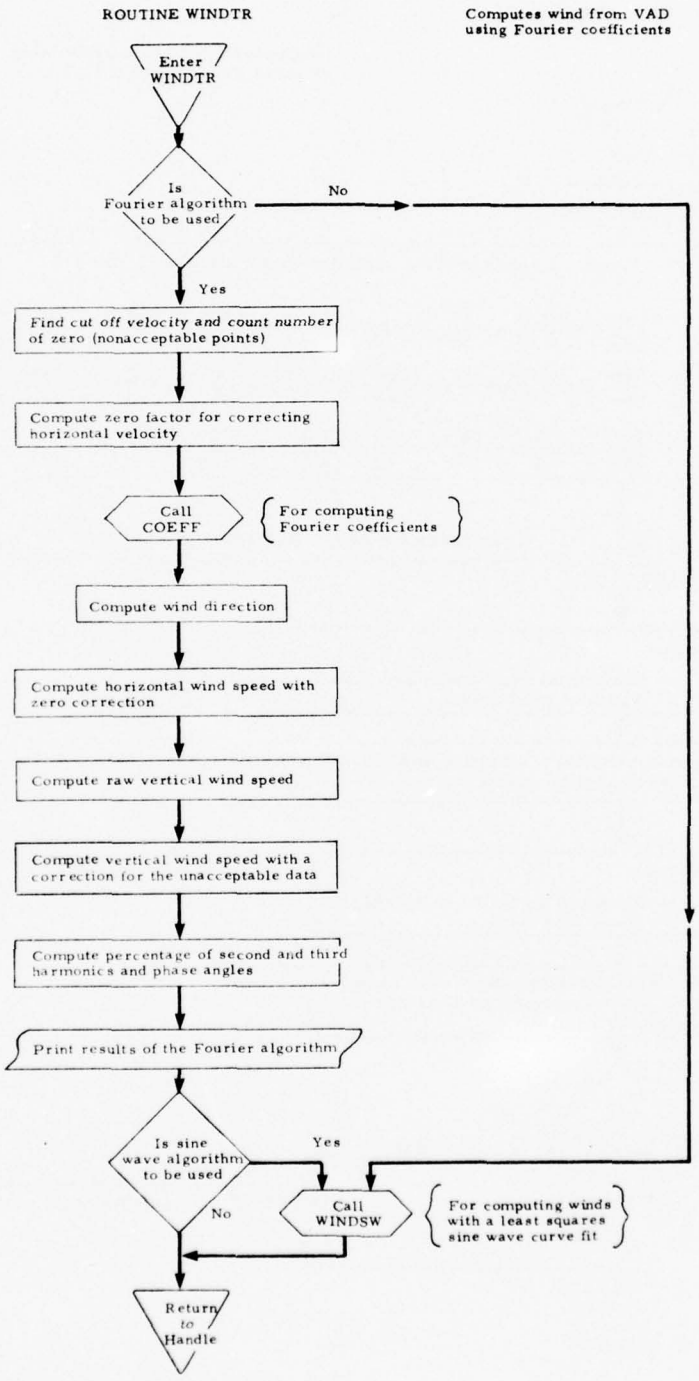



The highest of the two peaks will be called Peak One and the other one is called Peak Two
Compute horizontal speed from Peak One and horizontal speed from Peak Two
Compute wind azimuth with respect to North for Peak One and for Peak Two
Compute average wind speed and direction of the two peaks
Compute average vertical speed from the two peaks
Print results of the peak algorithm
Are wind averages to be made, and is it time for the averages
Yes
No
Call STATC
To routine STATS for averaging results from peak algorithm
Return to HANDLE

ROUTINE WINDSW

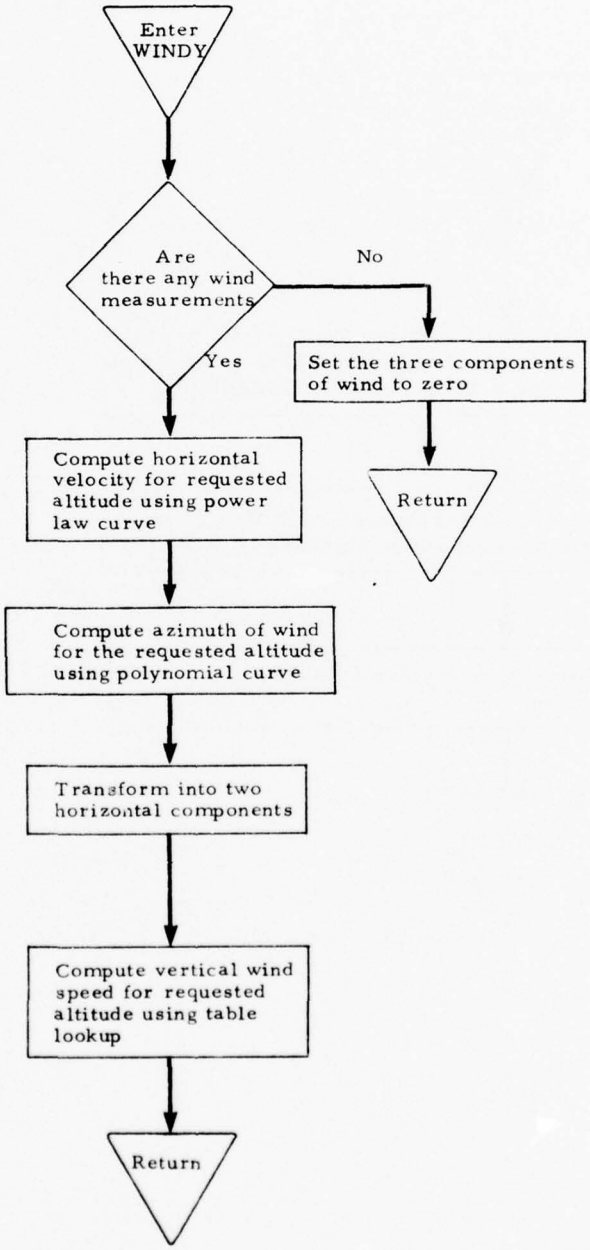
Computes wind from VAD using a least squares curve fit to a sine wave




ROUTINE WINDTR
Computes wind from VAD using Fourier coefficients
Enter WINDTR
Is Fourier algorithm to be used
No
Yes
Find cut off velocity and count number of zero (nonacceptable points)
Compute zero factor for correcting horizontal velocity
Call COEFF
For computing Fourier coefficients
Compute wind direction
Compute horizontal wind speed with zero correction
Compute raw vertical wind speed
Compute vertical wind speed with a correction for the unacceptable data
Compute percentage of second and third harmonics and phase angles
Print results of the Fourier algorithm
Is sine wave algorithm to be used
Yes
No
Call WINDSW
For computing winds with a least squares sine wave curve fit
Return to Handle

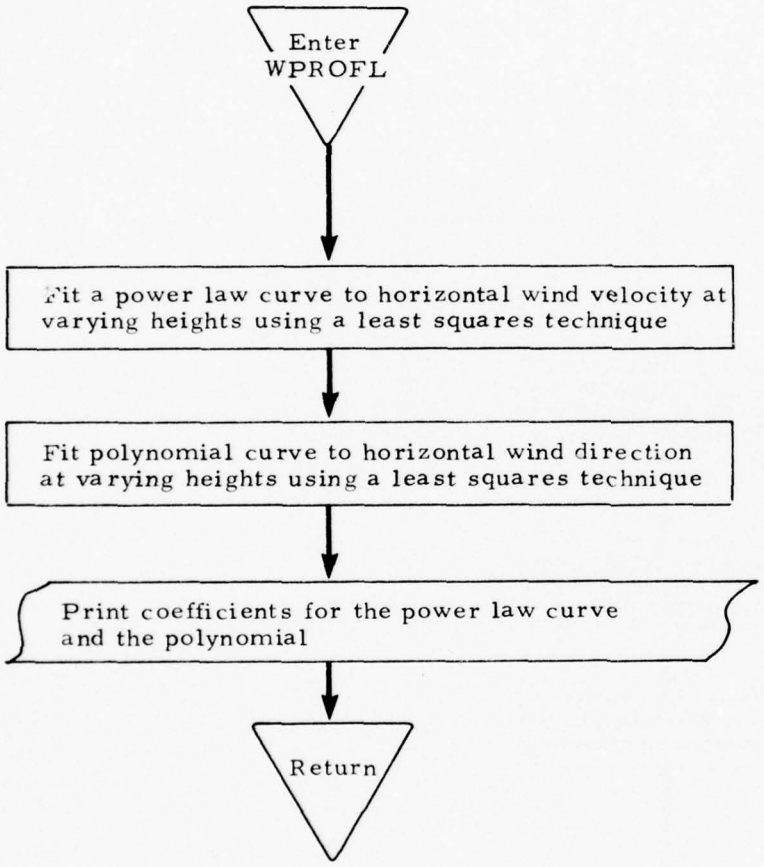
ROUTINE WINDY

Finds wind velocity at a particular altitude



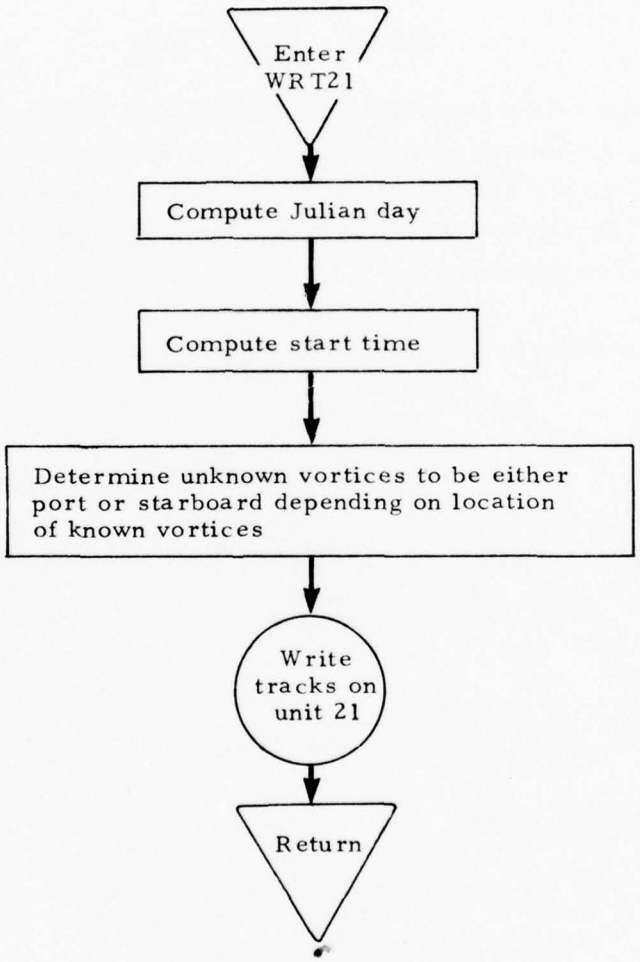
ROUTINE WPROFL

Computes wind profile as a function of height



ROUTINE WRT21

Writes vortex tracks on unit 21 for use by Data Management program



In addition to the flow charts presented on the previous pages, the following library routines are used in the VAD Vortex Track Program; FPLOT, SOLVIT and LSQPF. Rather than present detailed flow charts for these general library routines, they are described below in terms of the purpose, function and usage.

- Subroutine FPLOT

Purpose

FPLOT collects and stores data as they become available, and upon signal, produces a printer plot in practically any orientation and size. FPLOT should be regarded as a general purpose output routine for displaying output data in graphical form.

Usage

CALL FPLOT(M1, IPNT, AR, LR, ISTOP, NCU, NCMAX, V1, V2)

Description of Parameters

M1	is the size of the main storage array, and it should never be larger than 800, which corresponds to 400 points to be plotted.
IPNT	is a counter initialized-usually IPNT = 0 - in the calling program. It is incremented by 2 each time a new data point is entered in AR.
AR	is the main storage array. It should be in a dimension statement in the calling program. For example, DIMENSION AR(800).
LR	is an array of bytes used to hold the curve number. It should be dimensioned for M1/2. The type declaration LOGICAL*1 LR(400) should be in the calling program.

ISTOP	is the flag used to signal that all data has been entered. ISTOP=0 causes data to be stored. If ISTOP=-1 and NCU=NCMAX the program immediately branches to the plotting section. If ISTOP=1 and NCU = NCMAX a data point is stored and then the plotting section is entered.
NCU	is the curve number for which data are being entered. It must be a positive integer less than 21.
NCMAX	is the number of curves to appear on the graph. This is the largest value NCU will have.
V1	is the horizontal coordinate of the data point to be plotted.
V2	is the vertical coordinate of the data point to be plotted.
IT(1)	causes the standard horizontal size of 120 positions to be used. A positive integer will cause the horizontal size to be modified. Maximum horizontal size is 120 positions.
IT(2)	A zero causes the standard vertical size of 58 positions to be used. A positive integer will cause the vertical size to be modified. Maximum vertical size is 238 positions.
IT(3)	A zero causes the standard horizontal positive direction – to the right – to be used. A 1 causes reversal.
IT(4)	A zero causes the standard vertical positive direction – up – to be used. A 1 causes reversal.
LC(1 to 20)	Any symbols placed here will be used as plotting characters.

Remarks

As many as 20 different curves may appear on a single graph.

A maximum of 400 points can be plotted on one graph.

The number of points in each curve is arbitrary, but the total number of points must not be exceeded.

The order in which the points of different curves is computed is arbitrary.

The graph size is adjustable up to 120 x 238 positions.

The standard size is 120 x 58 positions – one page.

The standard horizontal and vertical positive directions can be independently changed.

Scaling of data is automatic, the best even scale factor being selected to maximize graph resolution within the available space.

A border of XXXXXXX is automatically supplied.

The background grid is arranged so that one of the major divisions will pass through zero. The background grid is marked only at the intersections of the major divisions

If the coordinate of zero appears on a graph, a solid line appears so that this major division stands out.

Numerical values are supplied for all major divisions.

The program plots vertically or horizontally with equal ease.

When collecting data for several curves to appear on a single graph, no plots are made until the signal is given and the last data point for the last curve has been stored.

Should one inadvertently try to store more data than storage has been set aside, data storage is bypassed. Only the data stored are used in making the graph.

A curve with one point, or a curve of a constant can be plotted.

Stored data are undisturbed and available for later use.

- Subroutine SOLVIT

Purpose

Compute a highly accurate solution to the matrix equation AX = B where A is an N x N matrix, and X and B are vectors.

Usage

CALL SOLVIT (A, N, M, B, X, ACC, MAXIT, IT, IN, W)

Description of Parameters

A	N x N matrix of coefficients
N	number of rows of A
M	number of rows of array in which A is stored
B	right-hand side of equation AX = B
X	solution vector

ACC	accuracy desired
MAXIT	maximum number of iterations to be tried. (10 should be sufficient.) If MAXIT = 0, no iterations will be performed.
IT	internal indicator set by program to: = -1 if matrix is singular = 0 if convergence failed within MAXIT iterations = k the number of iterations it took to converge
IN	to be set = 1 for first entry to the subroutine = 2 for subsequent entries if A has not been changed.
W	N x (N + 5) array used as working storage.

Method

The Gaussian elimination method with partial pivoting is used to decompose the matrix to upper and lower triangular matrices. (These triangular matrices are saved.) From the residual vector B - AX, a correction vector is computed and added to X. The process is repeated until the residual vector is within the tolerance.

The initial scaling of each row, to bring the maximum element between 1/2 and 1, is done using factors equal to integral powers of 2 to eliminate round off errors which otherwise might have been introduced.

The method is due to Cleve Moler, JPL, presented at SHARE XXV, Chicago.

Storage Requirements

116 locations.

Restrictions

In most cases, eight digits accuracy can be attained.

W must not be used between calls to SOLVIT when solving for multiple right-hand sides. Matrix A is destroyed.

Note

SOLVIT is only a driver for the deck SIME (entry points SIMEQA and SIMEQB): thus two decks comprise this subroutine. In addition, this subroutine uses the library subroutine LOG2.

- Subroutine LSQPF, LSQPF1

Purpose

This program will fit polynomials of order one through seven to n given points (X_1, Y), (X_2, Y_2), --- (X_n, Y_n) by the method of least squares. The order and spacing of the points is immaterial and the points need not all be distinct.

Usage

a. CALL LSQPF (X, Y, K, N, M, C, IERR) or

b. CALL LSQPF1 (X, Y, K, N, M, C, IERR)

Description of Parameters

X	for both entries X is the first location of the block of X_i values (real array)
Y	for both entries Y is the first location of the block of Y_i values (real array)
K	for both entries K is zero if residuals are not needed; is nonzero if residuals are wanted (integer)
N	for both entries N is the number of points to be fitted (integer)
M	for entry (a), M is the highest order polynomial desired. The routine will compute polynomial fits of degree one through M and return all coefficients. For entry (b), the routine computes a polynomial fit of degree M only. $2 \leq M \leq 7$ (integer)

C — for both entries, C is the first location of the block where the coefficients, standard deviation, and residuals will be stored.

for entry (a), the dimension of C must be M(M+5)/2 if K = 0, and M(M+5)/2 + N * M if $K \neq 0$. The coefficients, a_i, the standard deviation, σ, and the residuals, R_j, are stored in the following order beginning at location C:
$A_o^{(1)}$, $A_1^{(1)}$, $\sigma^{(1)}$, $A_o^{(2)}$, $A_1^{(2)}$, $A_2^{(2)}$, $\sigma^{(2)}$, ---, $A_o^{(M)}$, $A_1^{(M)}$, --- $A_m^{(M)}$, $\sigma^{(M)}$, $R_1^{(1)}$, $R_2^{(2)}$, $R_2^{(2)}$, --- $R_n^{(2)}$, --- $R_1^{(M)}$, $R_2^{(M)}$, --- $R_n^{(M)}$.

The location of A_o of polynomial degree $P(1 \leq P \leq M)$ is C(I) where $I = P(P+5)/2 - (P+1)$. The location of R_1 of polynomial degree $P(1 \leq P \leq M)$ is C(I) where $I = M(M+5)/2 + N(P-1)+1$.

For entry (b), the dimension of C must be (M+2) if K = 0, and (M+2+N) if $K \neq 0$. The coefficients are stored in C(1) through C(M+1), the standard deviation in C(M+2), and the residuals in C(M+3) through C(M+2+N). (real array)

IERR — for both entries, IERR is the error flag; it will contain 0 if no error occurred, and some number if an error has occurred. There are two reasons for an error: one of the pivotal elements is zero, or an overflow has occurred. (integer)

Method

The method of solution is as follows:

Given a set of n points, (X_i, Y_i), we require sets of coefficients, a_j, such that

$$\sum_{j=0}^{P} a_j (X_i)^j$$

is the best least squares fit to Y_i over all i. This is done by first normalizing the X_i to the interval (-1, +1) by use of the formula

$$X'_i = \frac{X_i}{\max\left(|X_o|, \ldots, |X_n|\right)}$$

We can then work in terms of Chebychef polynomials, T_k, where

$$T_0 = 1$$
$$T_1 = X'_1$$
$$T_k = 2\,X'\,T_{k-1} - T_{k-2}$$

for k = 2(1)p. We now seek t_j such that

$$\sum_{j=0}^{P} t_j\, T_j\,(X'_i)$$

gives the best least squares fit. The residuals, R_i^k, are

$$R_i^{(k)} = \sum_{j=0}^{k} \left[a_j\,(X_i)^j\right] - Y_i, \qquad k = 1(1)p$$

The unbiased estimate of the standard deviation of the kth order polynomial fit is

$$\sigma^{(k)} = \frac{\sum_{i=1}^{n} \left|R_i^{(k)}\right|}{n} \sqrt{\pi/2}$$

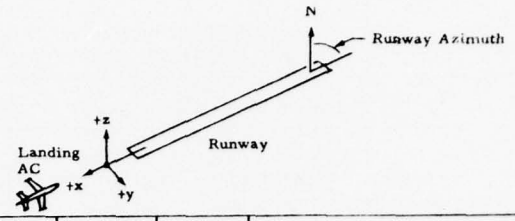
Restrictions

The value of M must be in the range 2 through 7. Care should be exercised in using this routine since considerable loss in accuracy of the coefficients is sometimes involved.

Location: KIA
Date: 1-13-76
Sheet 1 of 1

Van X Position Ref. Pt.: 250 ft Middle Marker
Van Y Position Ref. Pt.: 400 ft Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch: 115



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No.	AC Type or VAD	B.W. (kHz)	Log/Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
001	VAD	30	Lin	0	100 kHz	2	1	–	–	–	60	–	–	20		1537		180&12	50,60,75,100,150,200,300,500

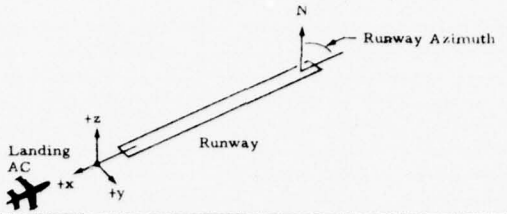
Location: K19
Date: 6-19-76
Sheet 1 of 3

Van X Position: 250 ft
Ref. Pt. Middle MARKER

Van Y Position: 400 ft
Ref. Pt. Center of RW

Runway Azimuth: 310

Mirror Azimuth for Switch: _____



Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
001	VAD	30	LIN	0	200 MHz	3.0	1	—	—	—	60	—	—	021		10 28	10:33	310@10	30, 40, 45, 60, 90, 120, 240, 335
002	AC	30	LIN	.6	0	2.6	1	200	080	3.5	30	03	.1	"		10 51	10 52	330 @ 20	B 707
003	AC	30	LIN	.6	1.0	2.6	1	200	080	3.5	30	03	.1	"		10 55	10 56	330@17	DC-9 + B 727
004	AC	30	LIN	.6	1.0	2.6	1	200	080	3.5	30	03	1	"		11 24	11 25	330@20	B-707
005	AC	100	LIN	.6	1.0	2.6	1	200	080	3.5	30	03	1	"		11 32	11:33	330@18	B-727
006	AC	100	LIN	.6	1.0	2.6	1	200	080	3.5	30	03	1	"		11 37	11 38	330@20	DC-9
007	VAD	100	LIN	.6	1.0	2.6	1	200	080	3.5	30	03	1	"		11 48	11 53	330@20	30 40 45 60 90 120 240 335
008	VAD	30	LIN	0	200 MHz	2	1	200	080	3.5	30	03	1	"		13 40	13 45	310@18	30, 40, 45, 60, 90, 120, 240, 335
009	AC	100	LIN	.6	1.0	2.6	1	200	080	3.5	30	03	1	"		14 02	14 04	330@20	DC-8
010	AC	100	LIN	.6	1.0	2.6	1	200	080	3.5	30	03	1	"		14 05	14 06	330@25	DC-9
011	AC	100	LIN	.6	1	2.6	1	200	080	3.5	30	03	1	"		14 13	14 14	300@25	B-707
012	AC	30	LIN	1	1.2	3	1	200	080	3.5	30	05	1	"		14 17	14 19	300@25	B-707
013	AC	100	LIN	1	1.4	3	1	200	080	3.5	30	03	1	"		14 20	14 21	300@25	DC-9
014	AC	100	LIN	1	1.6	3	1	200	080	3.5	30	03	1	"		14 27	14 28	300@20	B 747
015	AC	100	LIN	1	2.0	3	1	200	080	3.5	30	03	1	"		14 32	14 32	300@20	DC-10
016	AC	100	LIN	1	2.0	3	1	~~160~~ 200	~~70~~ 080	~~30~~ 35	~~40~~ 30	~~03~~ 03	1	"		14 34	14 35	300@20-25	B 747
017	AC	100	LIN	1	1.8	3	1	160	70	30	40	03	1	"		14 36	14 37	300@20-25	B 747
018	AC	100	LIN	1	2.0	3	1	160	70	30	40	03	1	"		14 38	14 39	300@20-25	B 747
019	AC	100	LIN	1	2.0	3	1	160	50	30	40	03	1	"		14 41	14 42	300@20	B 747
020	AC	100	LIN	.6	1.8	3.6	1	160	50	30	40	03	1	"		14 52	14 52	280@25	DC-8
021	VAD	30	LIN	0	2	20	1	160	50	30	60	03	1	"		14 56	15 01	240@25	30, 40, 45, 60, 90, 120, 240, 335
022	AC	30	LIN	1.4	1.8	3.4	1	160	50	30	40	03	1	"		15 01	15 01	290@25	B 707
023	AC	100	LIN	1.4	1.8	3.4	1	160	50	30	40	03	1	"		15 17	15 18	280@20	B 707
024	AC	100	LIN	1.4	1.9	3.4	1	160	50	30	40	03	1	"		15 22	15 21	280@20	B 707
025	AC	100	LIN	1.4	1.8	3.4	1	160	50	30	40	03	1	"		15 23	15 24	280@23	~~B 727~~ DC 10
026	AC	100	LIN	1.4	1.8	3.4	1	160	50	30	40	~~03~~ 05	1	"		15 25	15 26	280@20	B 707
027	AC	100	LIN	1.4	1.8	3.4	1	160	50	30	40	15	1	"		15 27	15 28	280@21	B 747
028	AC	100	LIN	1.4	1.8	3.4	1	160	50	30	45	15	1	"		15 29		280@20	DC-8

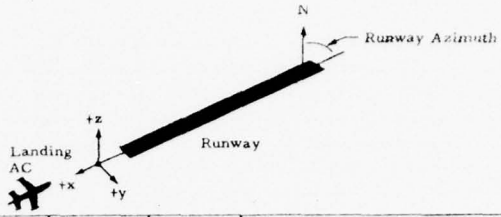
Location: KIA
Date: 11 4 76
Sheet 2 of 3

Van X Position: 250 ft
Ref. Pt. MIDDLE MARKER

Van Y Position: 400 ft
Ref. Pt. Center of RW

Runway Azimuth: 310

Mirror Azimuth for Switch: 115



Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
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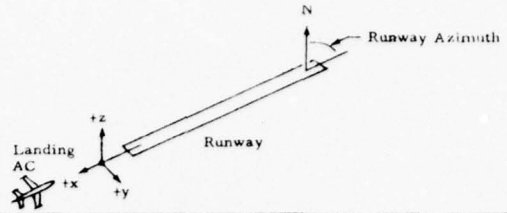
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
029	AC	100	LIN	14	18	34	1	140	40	30	45	15	1	21		15 32	15 32	280@23	B 747
030	AC	100	LIN	14	18	34	1	140	40	30	45	15	1	"		15 34	15 36	290@25	B 707
031	AC	100	LIN	14	16	34	1	140	40	30	45	15	1	"		15 37	15 38	290@22	B 747 Good Run
032	AC	100	LIN	14	16	34	1	140	40	30	45	15	1	"		15 40	15 41	280@20	B 727
033	737	100	LIN	14	20	34	1	140	40	30	45	15	1	21		15 43	15 44	280@23	
034	727	100	LIN	14	20	34	1	140	40	30	45	15	1	"		15 46	15 47	300@23	
035	747	100	LIN	14	20	34	1	140	40	30	45	10	1	"		15 49	15 50	290@15	
036	707	100	LIN	14	20	34	1	140	35	30	45	10	1	"		15 53	15 54	290@15	
037	707	100	LIN	14	20	34	1	140	35	30	45	10	1	"		15 55	15 56	290@24	
038	DC 8	100	LIN	14	20	34	1	140	35	30	45	10	1	"		15 57	15 57	290@24	
039	DC 8	100	LIN	14	20	34	1	140	35	30	45	10	1	"		16 01	16 01	280@18	
040	707	100	LIN	14	20	34	1	140	35	30	45	10	1	"		16 04	16 05	280@20	
041	DC 9	100	LIN	14	20	34	1	140	35	30	45	10	1	"		16 06	16 07	270@20	
042	747	100	LIN	14	20	34	1	140	35	30	45	10	1	"		16 08	16 09	280@20	
043	707	100	LIN	14	20	34	1	140	35	30	45	10	1	"		16 10	16 11	290@18	
044	747	100	LIN	14	20	34	1	140	35	30	~~45~~ 50	15	2	"		16 14	16 15	290@18	
045	707	100	LIN	14	20	34	1	140	35	30	50	15	2	"		16 18	16 19	290@18	
046	707	100	LIN	14	20	34	1	140	35	30	50	15	2	"		16 20	16 21	280@20	
047	727	100	LIN	14	20	34	1	140	35	30	50	15	2	"		16 23	16 24	280@18	
048	DC 10	100	LIN	14	20	34	1	140	35	30	50	15	2	"		16 25	16 26	240@23	
049	VAD	300	LIN	0	20Hz	20	1				60			"		16 28	16 30	240@25	30, 40, 45, 60, 90, 120, 240, 350
050	707	~~300~~ 330	LIN	14	20	34	1	140	35	30	50	15	2	"		16 32	16 33	290@20	
051	747	~~300~~ 330	LIN	14	20	34	1	140	35	30	50	15	2	"		16 36	16 37	280@18	
052	747	~~300~~ 330	LIN	14	20	34	1	140	35	30	50	15	2	"		16 39	16 40	300@20	
053	747	~~300~~ 330	LIN	14	20	34	1	140	35	30	50	15	2	"		16 42	16 43	300@20	
054	727	~~300~~ 330	LIN	14	20	34	1	140	35	30	50	15	2	"		16 44	16 45	280@20	
055	747	~~300~~ 330	LIN	14	20	34	1	140	35	30	50	15	2	"		16 47	16 48	290@18	
056	707	~~300~~ 330	LIN	14	20	34	1	140	35	30	50	15	2	"		16 49	16 50	280@21	

MVU External Log

Location: KIA
Date: 1-14-76
Sheet 3 of 3

Van X Position: 250 ft
Ref. Pt. middle RW/Taxiway
Van Y Position: 400 ft
Ref. Pt. Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch: 115

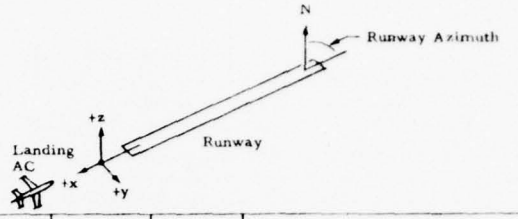


Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
057	747	3	LIN	14	28	34	1	140	35	30	50	15	2	21		1651	1652	280/120	
058	707	3	LIN	14	28	34	1	140	35	30	50	15	2	"		1653	1654	280/120	
059	727	3	LIN	14	28	34	1	140	35	30	50	15	2	"		1656	1657	240/180/28	
060	L-1011	3	LIN	14	28	34	1	140	35	30	50	15	2	"		1658	1654	240/180/28	
061	747	3	LIN	14	28	34	1	140	35	30	50	15	2	"		1701	1702	240/180/28	
062	747	3	LIN	14	28	34	1	140	35	30	50	15	2	"		1704	1705	240/180/28	
063	707	3	LIN	14	28	34	1	140	35	30	50	15	2	"		1708	1709	240/180/28	
064	707	30	LIN	14	28	34	1	140	35	30	50	15	2	"		1715	1716	240/180/28	
065	747	100	LIN	14	28	34	1	140	35	30	50	15	2	"		1720	1721	240/180/28	
066	140	30	LIN	0	300 MHz	20	1	-	-	-	60	-	-	-		1724	1727	240/180/28	30, 40, 45, 60, 80, 120, 240, 320

Location: KIA
Date: 4-15-76
Sheet 1 of 4

Van X Position: 250
Ref. Pt. Middle Marker
Van Y Position: 400 Rt
Ref. Pt. Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch: 115

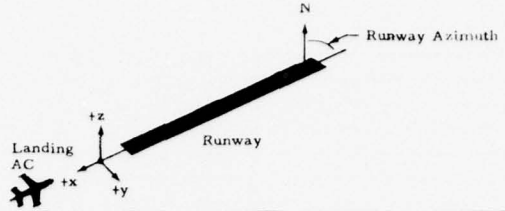


Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
001	VAD	30	LIN	0	3	20	1	-	-	-	60	-	-	22		10 32	10 56	340@16	30,40,45,60,90,120,240,350
002	DC8	100	LIN	6	8	26	1	160	45	30	40	05	2	"		11 05	11 06	340@16	
003	727	100	LIN	6	8	26	1	160	45	30	40	05	2	"		11 14	11 15	340@16	
004	DC 9	100	LIN	6	1	26	1	160	45	30	40	05	2	"		11 30	11 32	340@18	
005	747	100	LIN	6	1	26	1	160	45	30	40	05	2	"	28	11 35	11 37	340@16	
006	707	100	LIN	6	8	26	1	160	45	30	40	05	2	"		11 41	11 42	340@18	
007	727	100	LIN	6	8	26	1	200	55	30	40	05	1	"		11 49	11 51	340@16	
008	727	100	LIN	6	8	26	1	200	55	30	40	05	1	"		12 05	12 06	330@16	
009	707	100	LIN	6	8	26	1	200	55	30	40	05	1	"		12 09	12 10	330@16	
010	DC-9	100	LIN	6	1	26	1	200	55	30	40	05	1	"		12 17	12 18	330@18	
011	DC-9	100	LIN	6	1	26	1	200	55	30	40	05	1	"		12 32	12 33	340@18	
012	727	100	Lin	.6	1	2.6	1	200	55	30	40	05	.1	"		12 40	12 41	340@18	
013	L1011	100	Lin	.6	1	2.6	1	200	55	30	40	05	.1	"		12 43	12 44	340@18	
014	707	100	Lin	.6	1	2.6	1	200	55	30	40	05	.1	"		12 45	12 46	340@18	
015	VAD	30	Lin	0	.4	2.0	1	200	55	30	60	-	-	"		12 47	12 57	340@18	30,40,45,60,90,120,240,350
016	707	100	Lin	.6	1	2.6	1	200	55	30	40	05	.1	"		12 57	13 00	340@18	
017	DC9	100	Lin	.6	1	2.6	1	160	45	30	40	05	.1	"		DC7	13 08	340@18	
018	VAC III	100	Lin	.6	1	2.6	1	160	45	30	40	05	.1	"		13 07	13 10	340@18	
019	727	100	Lin	.6	1	2.6	1	160	45	30	40	05	.1	"		13 11	13 12	340@18	
020	747	100	Lin	.6	1	2.6	1	160	45	30	40	05	.1	"		13 17	13 18	340@18	
021	DC8	100	Lin	6	1	26	1	160	45	30	40	05	.1	"		13 20	13 21	340@18	
022	707	100	LIN	6	1	26	1	160	45	30	40	05	1	"		13 94	13 94	310@18	
023	727	100	LIN	6	1	26	1	210 160	65 45	30	40	05		"		13 30	13 31	320@15	
024	747	100	LIN	6	1	26	1	210 160	65 45	30	40	05	1	"		13 40	13 41	320@18	
025	DC-10	100	LIN	6	1	26	1	210	65	30	40	05	1	"		13 43	13 44	320@15	
026	747	100	Lin	.6	1	2.6	1	210	65	30	35	02	1	"		13 51	13 52	320@16	
027	727	100	LIN	6	1	26	1	210	65	30	35	02	1	"		13 53	13 54	320@15	
028	747	100	LIN	6	1	26	1	210	65	30	35	02	1	"		13 56	13 57	340@17	

Location: KIA
Date: 1-15-26
Sheet 2 of 4

Van X Position: Ref. Pt. 1
Van Y Position: Ref. Pt. Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch

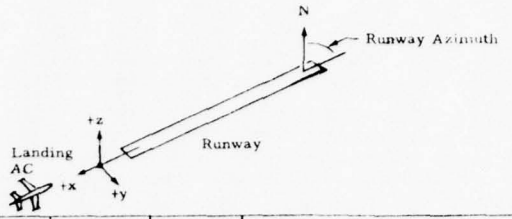


Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
029	747	100	LIN	6	1	26	1	210	65	30	35	2	1	22		1358	1400	320@15	
030	DC-8	100	LIN	6	1	26	1	210	65	30	35	2	1	22		1403	1404	300@15	
031	707	100	LIN	6	1	26	1	160	45	30	35	2	1	"		1406	1407	300@16	
032	BAC 111	100	LIN	0	9	20	1	160	45	30	35	2	1	"		1408	1409	300@14	
033	DC 9	100	LIN	0	6	20	1	160	45	30	35	2	1	"		1413	1414	330@12	
034	~~747~~ 727	100	LIN	0	6	2	1	160	45	30	35	2	1	"		1416	1417	320@10	
035	707	100	LIN	0	6	2	1	160	45	30	35	2	1	"		1418	1421	320@10	
036	DC-9	100	LIN	0	6	2	1	160	45	30	35	2	1	"		1421	1421	320@10	
037	707	100	LIN	0	6	2	1	160	45	30	35	2	1	"		1422	1423	320@10	
038	BAC111	100	LIN	4	6	24	1	160	45	30	35	2	1	"		1424	1425	320@10	
039	727	100	LIN	4	8	24	1	160	45	30	35	2	1	"		1431	1432	330@15	
040	707	100	LIN	4	8	24	1	160	45	30	35	2	1	"		1432	1433	330@15	
041	707	100	LIN	4	8	24	1	160	45	30	35	2	1	"		1434	1435	330@15	
042	727	100	LIN	4	8	24	1	160	45	30	35	2	1	"		1436	1437	330@15	
043	747	100	LIN	4	8	24	1	160	45	30	35	2	2	"		1441	1442	290@15	
~~045~~ 044	BAC11	100	LIN	4	8	24	1	160	35	30	35	2	2	"		1456	1457	310@10	
044	VAd	30	LIN	0	4	20	1	-	-	-	60	-	-	"		1450	1453	310@10	30, 40, 45, 60, 90, 120, 200, 350
046	~~707~~ 728	100	LIN	4	6	24	1	160	35	30	35	2	2	"		1501	1503	320@10	
047	~~DC-10~~ 707	100	LIN	4	6	24	1	160	35	30	35	2	2	"		1503	1505	340@12	
048	VC-10	100	LIN	4	7	24	1	160	35	30	35	2	2	"		1506	1507	330@12	
049	747	100	LIN	4	7	24	1	160	35	30	35	2	2	"		1509	1510	320@15	
050	747	100	LIN	7	7	27	1	160	35	30	35	2	2	"		1512	1514	320@10	
051	707	100	LIN	7	7	27	1	160	35	30	35	2	2	"		1516	1516	320@12	
052	707	"	"	"	"	"	"	"	"	"	"	"	"	"		1514	1522	310@10	
053	707	"	"	"	"	"	"	"	"	"	"	"	"	"		1523	1525	300@12	
054	707	"	"	"	"	"	"	"	"	"	"	"	"	"		1525	1527	310@10	
055	~~747~~ DC9	"	"	"	"	"	"	"	"	"	40	12	12	"		1528	1530	310@10	
056	DC9	"	"	"	"	"	"	"	"	"	40	02	1	"		1534	1536	310@10	

Location: KIA
Date: 1-15-76
Sheet 3 of 4

Van X Position: Ref. Pt.
Van Y Position: Ref. Pt. Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch

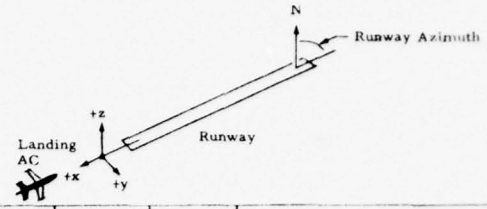


Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
057	727	100	LIN	.7	1.2	1.7	1	160	035	3.0	40	02	.1	22		15 36	15 37	300@10	
058	747	100	LIN	1	1.7	2.7	1	"	"	"	"	"	.1	"		15 38	15 40		
059	727	100	LIN	.7	1.7	2.7	1	160	035	3.0	40	02	.2	"		15 41	15 43	300@10	
060	707	"	"	"	"	"	"	"	"	"	"	"	"	"		15 43	15 44	300@15	
061	DC10	"	"	"	"	"	"	"	"	"	"	"	"	"		15 44	15 46	300@15	
062	707	"	"	"	"	"	"	"	"	"	"	"	"	"		15 48	15 49		
063	747	"	"	"	"	"	"	"	"	"	45	10	.2	"		15 50	15 51	300@15	
064	DC8	"	"	"	"	"	"	"	"	"	"	"	"	"		15 52	15 53		
065	VAD	30	LIN	0	1.2	2.0	1	—	—	—	60	—	—	"		16 57	16:00	300@15	30, 40, 45, 50, 90, 180, 240, 330
066	707	100	LIN	.7	1.70	2.7	1	160	035	3.0	40	02	.2	"		16 04	16 08	300@15	
067	747	"	"	"	1.10	"	"	"	"	"	"	"	"	"		16 09	16 11	290@12	
068	747	"	"	"	"	"	"	"	"	"	"	"	"	"		16 12	16 14	290@9	*
069	DC9	"	"	"	"	"	"	"	"	"	"	"	"	"		16 14	16 15	300@13	
070	DC10	"	"	"	"	"	"	"	"	"	"	"	"	"		16 17	16 19	300@14	
071	707	"	"	"	"	"	"	"	"	"	"	"	"	"		16 22	16 24	300@12	
072	DC9	"	"	"	"	"	"	"	"	"	"	"	"	"		16 25	16 26	290@15	
073	707	100	LIN	.7	1.1	2.7	"	160	035	3.0	40	02	.2	"		16 27	16 30		
074	747	"	"	"	"	"	"	"	"	"	45	05	.2	"		16 32	16 35	310@10	
075	707	"	"	"	"	"	"	"	"	"	"	"	"	"		16 36	16 38		
076	DC10	"	"	"	"	"	"	"	"	"	"	"	"	"		16 37	16 38	300@15	
077	707	"	"	"	"	"	"	"	"	"	"	"	"	"		16 37	16 38	310@15	
078	DC10	"	"	"	"	"	"	"	"	"	"	"	"	"		16 39	16 40	310@10	
079	707	"	"	"	"	"	"	"	"	"	"	"	"	"		16 41	16 42	310@15	
080	707	"	"	"	"	"	"	"	"	"	"	"	"	"		16 46	16 47	300@20	
081	747	"	"	"	"	"	"	"	"	"	"	"	"	"		16 49	16 51		
082	DC10	"	"	.7	.1	2.7	"	"	"	"	"	"	"	"		16 51	16 52		
082A	Lear Jet	"	"	.7	.1	2.7	"	"	"	"	"	"	"	"		16 54	16 56		
083	707	"	"	.7	.1	2.7	"	"	"	"	45	05	.2	"		16 56	16 57	310@15	

Location: KIA
Date: 1-15-76
Sheet 4 of 4

Van X Position: _____
Ref. Pt. _____
Van Y Position: _____
Ref. Pt. Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch _____

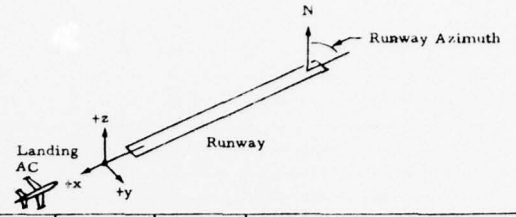


Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B. W. (kHz)	Log/Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
084	707	100	LIN	.7	.9	2.7	1	160	35	3.0	45	05	2	22		1658	1659	300@15	
085	DC10	"	"	"	"	"	"	"	"	"	"	"	"	"		1701	1702	300@15	
086	747	"	"	"	"	"	"	"	"	"	"	"	"	"		1702	1704	300@15	
087	747	"	"	"	"	"	"	"	"	"	"	"	"	"		1705	1706	300@15	
088	~~DC-10~~ L-1011	"	"	"	11	"	"	"	"	"	"	"	"	"		1709	1710	300@15	
~~089~~	L-1011	"	"	"	1.1	"	"	"	"	"	"	"	"	"		1711	1712	290@15	Computer did not run
090	747	"	"	"	"	"	"	"	"	"	"	"	"	"		1718	1719	300@15	
091	DC-8	"	"	"	9	"	"	"	"	"	"	"	"	"		1720	1721	290@20	
092	707	"	"	"	11	"	"	"	"	"	"	"	"	"		1724	1725	300@15	
093	727	"	"	"	9	"	"	"	"	"	"	"	"	"		1729	1730	290@12	
094	727	"	"	"	9	"	"	"	"	"	"	"	"	"		1731	1732	310@17	
095	VC-10	"	"	"	"	"	"	"	"	"	"	"	"	"		1733	1735	310@17	
096	707	"	"	"	"	"	"	"	"	"	"	"	"	"		1735	1736	310@17	
097	747	"	"	"	"	"	"	"	"	"	"	"	"	"		1737	1738	310@15	
098	707	"	"	"	"	"	"	160	35	3.0	40	3	2	"		1739	1740	310@15	
099	707	"	"	"	"	"	"	"	"	"	"	"	"	"		1741	1742	310@15	
100	707	"	"	"	"	"	"	"	"	"	"	"	"	"		1743	1744	310@15	
101	707	"	"	"	7	"	"	"	"	"	"	"	"	"		1753	1754	310@15	Colts denote wind shear but did not [illegible]
102	707	"	"	"	"	"	"	"	"	"	"	"	"	"		1755	1756	310@15	
103	747	"	"	"	"	"	"	"	"	"	"	"	"	"		1757	1758	310@17	
104	727	"	"	"	"	"	"	"	"	"	"	"	"	"		1800	1801	310@15	
105	VAd	30	LIN	0	2	2	1	-	-	-	60	-	-	"		1804	1822	310@15	30,40,45,60,120,240,350

Location: KIA
Date: 1-17-76
Sheet 1 of 1

Van X Position: 250 ft
Ref. Pt. middle MARKER
Van Y Position: 400 ft
Ref. Pt. Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch 115



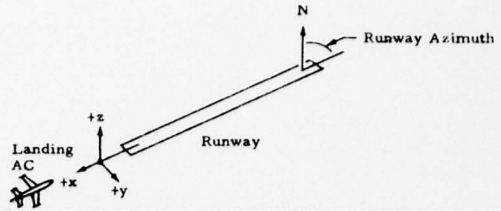
Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
001	VAD	[illegible]	[illegible]	0	[illegible]	2.0	1	–	–	–	60	–	–	24		0957	1001	360 @ 10	[illegible]
002	VAD	~~30~~	[illegible]	~~1.0~~	~~400KC~~	~~2.0~~	1	~~[illegible]~~	~~90~~	~~[illegible]~~	60	~~[illegible]~~	~~[illegible]~~	24		1047	[illegible]	360 @ 18	
003	VAD	30	LIN	0	400KC	2.0	1	–	–	–	60	–	–	24		1153	1203	360 @ 20	
004	VAD	30	LIN	0	400KC	2.0	1				60		–	24		1248	1300	030 @ 18	

Location: KIA
Date: 1-16-76
Sheet 1 of 1

Van X Position Ref. Pt.: 250 ft Middle marker
Van Y Position Ref. Pt.: 400 ft Center of RW

Runway Azimuth: 316

Mirror Azimuth for Switch: ,

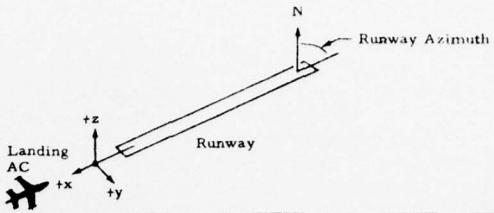


Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
001	VAD	30	LIN	0	30 KHz	2.0	1	—	—	—	60	—	—	23	8	1306	1339	240 to 15	30, 40, 95, 60, 90, 120, 240, 350
002	VAD	30	LIN	200 KHz	300 KHz	2.2	1									1344	1404	230 to 15	Light Rain
003	VAD	30	LIN	400 KHz	500 KHz	2.4	1	—	—	—	60	—	—	23		1407	1508	2	Light Rain, Cleared

Location: KIA
Date: 1-26-76
Sheet 1 of 1

Van X Position: 250 ft
Ref. Pt. Middle Marker
Van Y Position: 400 ft
Ref. Pt. Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch 115

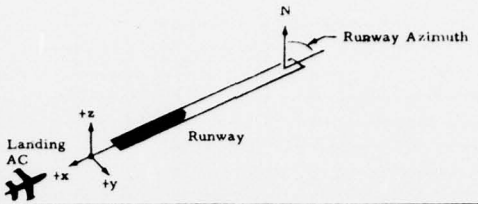


Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
001	VAD	30	LIN	200Kz	.3	2.2	1	-	-	-	60	-	-	25		11 04 10	11 20 0	190@12	25-30-40 45 70 90 120 350 Visability 1 1/2
																			Light Rain Fog ceiling 300 Broken
001	VAD	30	LIN	.6	.6	2.6	1	-	-	-	60	-	-	26		16 35	17.00	180@15	40 45 70 90 120 150 200 25 30 40 45 70 90 120 350

Location: KTA
Date: 1-27-76
Sheet 1 of 2

Van X Position Ref. Pt.: 23 nm Middle Marker
Van Y Position Ref. Pt.: 400 ft Center of RW

Runway Azimuth: 360
Mirror Azimuth for Switch: 115



Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log / Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
001	VAD	30	LIN	2	2	22	1	–	–	–	60	–	–	27		1130	1135	210@20	45, 70, 90, 120, 190, 240, 330
002	VAD	30	LIN	0	2	20	1	–	–	–	60	–	–	"		1718	1722	020@11	17°@1000 200@0, no turbulence
003	707	100	LIN	1	12	3	1	220	070	31	30	03	1	"		1755	1756	020@12	LIGHT RAIN + Fog
004	DC-10	100	LIN	1	12	3	1	220	070	31	30	03	1	"		1756	1757	020@12	"
005	707	100	LIN	1	12	3	1	220	070	31	30	03	1	"		1757	1759	020@12	"
006	707	100	LIN	1	12	3	1	220	070	31	30	03	1	"		1800	1801	020@10	"
007	DC9	100	LIN	1	12	3	1	220	070	31	40	03	1	"		1802	1803	020@14	"
008	707	100	LIN	1	12	3	1	220	070	31	30	03	1	"		1805	1806	020@14	"
009	707	100	LIN	1	12	3	1	220	070	31	30	03	1	"		1807	1808	020@12	"
010	DC-9	100	LIN	12	12	3	1	220	070	31	30	03	1	"		1810	1810	020@14	"
011	727	100	LIN	12	12	3	1	220	070	31	30	03	1	"		1811	1813	020@10	"
012	VAD	30	LIN	0	2	20	1	–	–	–	60	–	–	"		1814	1815	020@14	WIND SHEAR REPORTED
013	747	100	LIN	12	12	32	1	220	070	31	30	03	1	"		1834	1835	040@11	LIGHT RAIN + Fog
014	DC9	100	LIN	12	12	32	1	220	070	31	30	03				1836	1837	040@10	"
015	DC 8	100	LIN	12	12	32	1	220	070	31	30	03	1			1838	1839	040@10	"
016	747	100	LIN	12	12	32	1	220	070	31	30	03	1	"		1839	1840	040@10	"
017	727	100	LIN	12	12	32	1	220	070	31	30	03	1	"		1841	1842	040@10	"
018	DC-8	100	LIN	12	12	32	1	220	070	31	30	03	1	"		1842	1843	040@10	"
019	727	100	LIN	12	12	32	1	220	070	31	30	03	1	"		1844	1845	040@10	"
020	727	100	LIN	12	12	32	1	220	070	31	30	03	1	"		1845	1846	040@10	"
021	707	100	LIN	12	12	32	1	220	070	31	30	03	1	"		1847	1848	020@10	"
022	727	100	LIN	12	12	32	1	220	070	31	30	03	1	"		1850	1851	020@10	"
023	VAD	30	LIN	0	2	20		–	–	–	60	–	–	"		1853	1855	040@10	45, 70, 90, 120, 190, 240, 330 & 360 deg
024	VAD	"	"	0	02	10	"	"	"	"	"	"	"	"		1856	1900	040@10	WIND
025	727	100	LIN	1	12	3	1	220	070	31	30	03	1	"		1903	1904	020@12	VISIBILITY ½ LIGHT RAIN + Fog
026	727	100	LIN	1	12	3	1	220	070	31	30	03	1	"		1905	1906	020@12	"
027	707	100	LIN	1	12	3	1	220	070	31	30	03	1	"		1907	1908	020@12	"
028	707	100	LIN	1	12	3	1	220	070	31	30	03	1	"		1909	1910	020@12	"

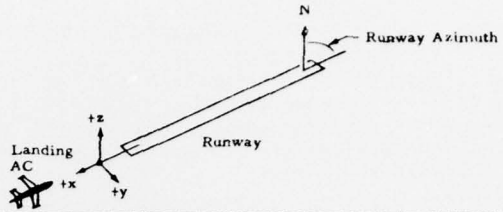
Location: KIA
Date: 1-27-76
Sheet 2 of 2

Van X Position: 250 ft
Ref. Pt. MIDDLE MARKER

Van Y Position: 400 ft
Ref. Pt. Center of RW

Runway Azimuth: 310

Mirror Azimuth for Switch: 115

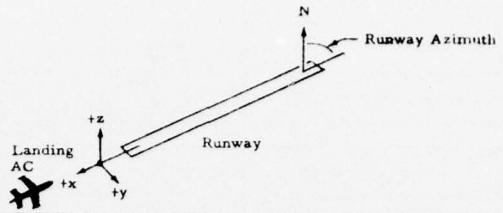


Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log / Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
029	707	100	LIN	1	1 2	3	1	220	070	31	30	03	1	27		1911	1912	010@11	Light Rain + Fog
030	VAD	30	LOG	0	2	2	1	-	-	-	60	-	-	"		1915	1930	010@10	4K 4.5, 2.4K, 1.2K, 600, 300 SHEAR
031	707	100	LIN	1	1 2	3	1	220	070	31	30	03	1	"		1932	1938	020@12	Light Rain + Fog
032	707	100	LIN	1	1 2	3	1	220	070	31	30	03	1	"		1952	1953	020@10	
033	727	100	LIN	1	1 2	3	1	220	070	31	30	03	1	"		1954	1954	030@10	"
034	707	100	LIN	1	1 2	3	1	220	070	31	30	03	1	"		1955	1956	030@10	"
035	DC 10	100	LIN	2	2 2	4	1	220	070	31	30	03	1	"		2005	2006	030@10	"
036	707	100	LIN	2	2 2	4	1	220	070	31	30	03	1	"		2007	2008	010@6	"
037	DC 8	100	LIN	2	2 2	4	1	220	070	31	30	03	1	"		2009	2010	010@6	"
038	DC 10	100	LIN	2	2 2	4	1	220	070	31	30	03	1	"		2011	2011	330@12	"
039	DC 9	100	LIN	1	1 4	3	1	220	070	31	30	03	1	"		2013	2014	330@12	"
040	707	100	LIN	1	1 2	3	1	220	070	31	30	03	1	"		2015	2016	310@10	"
041	VAD	30	LIN	2	2	2 2	1	-	-	-	60	-	-	"		2019	2030	320@12	STRong winds @ use ter

Location: KIA
Date: 1-28-76
Sheet 1 of 3

Van X Position: 2524' Ref. Pt. middle marker
Van Y Position: 400 ft Ref. Pt. Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch: 115

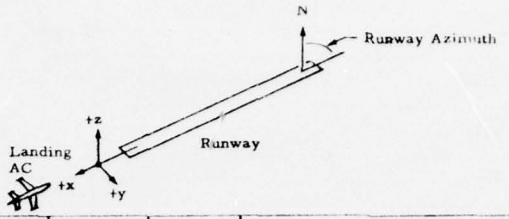


Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
001	VAD	30	LIN	0	3	2	1	-	-	-	60	-	-	28		1634	1642	310@20	40,45,70,90,120,140,240,350 Reflectors
002	DC-10	100	LIN	1	1	3	1	150	30	3.1	30	03	1	"		1650	1651	310@15	Clear
003	727	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1653	1654	320@10	
004	747	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1654	1657	320@15	
005	747	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1658	1659	320@15	
006	DC-9	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1700	1701	320@15	
007	L-1011	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1703	1705	320@10	
008	747	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1706	1708	310@15	
009	707	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1709	1710	310@15	
010	707	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1712	1713	310@15	
011	747	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1714	1716	310@15	
012	L1011	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1717	1718	310@15	
013	DC-8	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1720	1721	310@15	
014	707	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1725	1727	310@15	
015	727	100	LIN	1	1	3	1	150	30	3.1	40	10	2	"		1730	1731	310@15	
016	727	100	LIN	1	1	3	1	150	30	3.1	35	05	2	"		1733	1736	310@15	40,45,70,90,120,140,240,350
017	VAD	30	LIN	0	3	2	1	-	-	-	60	-	-	"		1738	1739	310@15	
018	727	100	LIN	1	1	3	1	150	30	3.1	35	05	2	"		1741	1742	310@15	
019	747	100	LIN	1	1	3	1	150	30	3.1	35	05	2	"		1743	1744	310@15	
020	747	100	LIN	1	1	3	1	150	30	3.1	35	05	2	"		1747	1750	310@15	
021	747	100	LIN	1	1	3	1	150	30	3.1	35	05	2	"		1752	1753	320@12	
022	4203/Prop	100	LIN		1	3	1	150	30	3.1	35	05	2	"		1754	1755	320@12	
023	DC-8	100	LIN	1	1	3	1	150	30	3.1	35	05	2	"		1756	1757	320@13	
024	707	100	LIN	1	1	3	1	150	30	3.1	35	05	2	"		1800	1801	320@13	.10 Run
025	707	100	LIN	1	1	3	1	150	30	3.1	35	05	2	"		1802	1803	310@12	
026	707	100	LIN	1	1	3	1	150	30	3.1	35	05	2	"		1808	1809	290@10	
027	727	100	LIN	1	1	3	1	150	30	3.1	35	05	2	"		1810	1811	320@10	
028	DC-9	100	LIN	1	1	3	1	150	30	3.1	35	05	2	"					

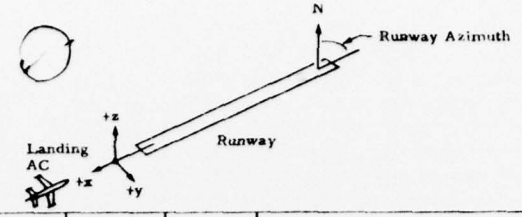
Location: KIA
Date: 1-28-76
Sheet 2 of 3

Van X Position Ref. Pt.: 2500' middle marker
Van Y Position Ref. Pt.: 400' Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch: 115



Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
029	727	100	LIN	1	1	3	1	150	30	31	35	05	2	38		18 12	18 13	310@12	
030	727	100	LIN	1	1	3	1	150	30	31	35	05	2	"		18 14	18 15	320@13	
031	727	100	LIN	1	1	3	1	150	30	31	35	05	2	"		18 19	18 20	300@12	
032	727	100	LIN	1	1	3	1	150	30	31	35	05	2	"		18 21	18 22	320@12	
033	DC10	100	LIN	1		3	1	150	30	31	35	05	2	"		18 26	18 28	310@18	
034	727	100	LIN	1	1	3	1	150	30	31	35	05	2	"		18 29	18 30	310@15	
035	727	100	LIN	1	1	3	1	150	30	31	35	05	2	"		18 31	18 32	240@15	
036	727	100	LIN	1	1	3	1	150	30	31	40	10	2	"		18 34	18 35	240@13	
037	727	100	LIN	1	1	3	1	150	30	31	40	10	2	"		18 36	18 37	240@12	
038	L1011	100	LIN	1 2		3 2	1	150	30	31	40	10	2	"		18 51	18 52	240@15	
039	727	100	LIN	1 2	1 4	3 2	1	150	30	31	40	10	2	"		18 53	18 54	240@15	
040	727	100	LIN	1 2	1 4	3 2	1	150	30	31	50	20	2	"		18 55	18 56	270@18	
041	DC9	100	LIN	1 2	1 4	3 2	1	150	30	31	50	20	2	"		18 57	18 58	270@18	
042	727	100	LIN	1 2	1 6	3 2	1	150	30	31	50	20	2	"		19 17	19 18	270@18	
043	DC 9	100	LIN	1 2	1 6	3 2	1	150	30	31	50	20	2	"		19 09	19 10	270@18	
044	DC 9	100	LIN	1 2	1 7	3 2	1	150	30	31	50	20	2	"		19 12	19 13	270@18	
045	727	100	LIN	1 2	1 7	3 2	1	150	30	31	50	20	2	"		19 14	19 15	280@18	
046	L1011	100	LIN	1 2	1 7	3 2	1	150	30	31	50	20	2	"		19 20	19 20	280@18	
047	727	100	LIN	1 2	1 7	3 2	1	150	30	31	50	20	2	"		19 21	19 22	270@18	
048	727	300	LIN	1 2	1 7	3 2	1	150	30	31	50	10	2	"		19 23	19 24	270@18	AZIMUTH 40
049	727	300	LIN	1 2	1 7	3 2	1	150	30	31	50	10	2	"		19 25	19 26	270@18	AZIMUTH 40 SAW VORTEX
050	707	300	LIN	1 2	1 7	3 2	1	100	25	31	50	15	2	"		19 29	19 30	270@18	AZIMUTH 40 SAW VORTEX
051	707	300	LIN	1 2	1 6	3 2	1	100	25	31	30	03	2	"		19 33	19 34	270@18	AZIMUTH 40 SAW VORTEX
052	707	300	LIN	1 2	1 6	3 2	1	100	25	31	30	03	2	"		19 35	19 36	270@18	AZIMUTH 40 SAW VORTEX
053	707	300	LIN	1 2	1 6	3 2	1	100	25	31	30	03	2	"		19 42	19 42	240@18	AZIMUTH 120 SAW VORTEX ELEVATION 20
054	707	300	LIN	1 2	1 6	3 2	1	100	25	31	30	03	2	"		19 44	19 45	270@18	AZIMUTH 30 SAW VORTEX ELEVATION 20
055	DC 10	300	LIN	1 2	1 6	3 2	1	100	25	31	30	03	2	"		19 46	19 47	270@18	AZIMUTH 130 SAW VORTEX ELEVATION 20
056	727	300	LIN	1 2	1 6	3 2	1	100	25	31	30	03	2	"		19 48	19 49	240@18	AZIMUTH 130 SAW VORTEX ELEVATION 20



Location: KIA
Date: 1-28-76
Sheet 3 of 3

Van X Position: 252 ft
Ref. Pt. MIDDLE MARKER

Van Y Position: 400 ft
Ref. Pt. Center of RW

Runway Azimuth: 310

Mirror Azimuth for Switch: 115

Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
057	727	3.0	LIN	1.2	1.7	3.2	1	150	25	31	50	15	2	28		1952	1953	270@18	
058	727	3.0	LIN	1.2	1.7	3.2	1	150	25	31	50	15	2	"		1955	1956	270@20	
059	727	3.0	LIN	1.2	1.7	3.2	1	30	25	31	40	10	2	"		1957	2000	270@ 8	
060	727	100	LIN	1.2	1.7	3.2	1	60	25	31	-	-	-	"		2002	—	240@18	ELEVATION 89 & 1 RECORD
061	727	100	LIN	1.2	1.7	3.2	1	60	25	31	-	-	-	"		2004	2005	240@18	ELEVATION 89 & SAW WORTH
062	727	100	LIN	1.2	1.7	3.2	1	60	25	31	-	-	-	"		2006	2007	240@18	ELEVATION 89 & SAW WORTH
063	727-100	100	LIN	1.2	1.7	3.2	1	60	25	31	-	-	-	"		2007	2008	240@ 8	ELEVATION 89 & SAW WORTH
064	DC-10	100	LIN	1.2	1.7	3.2	1	130	25	31	40	10	2	"		2009	2010	240@18	
065	DC-10	100	LIN	1.2	1.7	3.2	1	130	25	31	50	15	2	"		2011	2012	240@18	
066	727	100	LIN	1.2	1.7	3.2	1	130	25	31	50	15	2	"		2013	2014	270@18	
067	727	100	LIN	1.2	1.7	3.2	1	130	25	31	50	15	2	"		2017	2018	270@18	
068	707	100	LIN	1.2	1.7	3.2	1	130	25	31	50	15	2	"		2019	2021	270@18	
069	707	100	LIN	1.2	1.7	3.2	1	130	25	31	50	15	2	"		2031	2032	270@18	
070	707	100	LIN	1.2	1.7	3.2	1	130	25	31	50	15	2	"		2033	2034	270@18	
071	707	100	LIN	1.2	1.7	3.2	1	130	25	31	50	15	2	"		2034	2035	270@18	
072	727	100	LIN	1.2	1.7	3.2	1	130	25	31	50	15	2	"		2035	2036	270@ 5	
073	VAD	0.30	LIN				1	-	-	-	60	-	-	"				270@15	2 RUNS, 30 SEC EACH, 270 AND 240 HEAD

Location: K.A

Date: 1-29-76

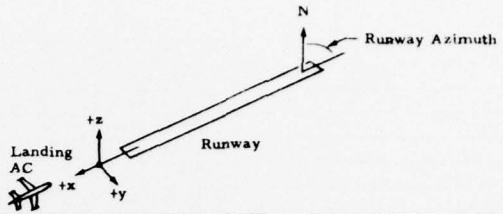
Sheet 1 of 1

Van X Position: 250 ft
Ref. Pt. Middle Marker

Van Y Position: 400 ft
Ref. Pt. Center of RW

Runway Azimuth: 310

Mirror Azimuth for Switch 115



Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B. W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
001	VAD	30	LIN	0	2	2	1	-	-	-	60	-	-	29		13:08	13:15	220@13	30,40,45,70,90,120,240,350 overcast
002	727	100	LIN	1	12	3	1	220	70	31	30	23	1	29		13:18	13:17	220@10	
~~003~~		~~100~~	LIN	0	~~3~~	30	1	~~160~~	~~30~~	31	30	23	1	"		13:36	13:41		
003	VAD	30	Lin	0	.3	20	1	-	-	-	60	-	-	29		13:36	13:41		30, 40, 45, 70, 90, 120, 240, 350
004	VAD	30	Lin	0	.3	20	1	350	30	10	60	-	-	29		13:46	13:48		scan [illegible] Az: 30
005	VAD	30	Lin	0	.3	20	1	-	-	-	60	-	-	29		13:57	14:[illegible]		30, 40, 45, 70, 90, 120, 240, 350
005	VAD	30	LIN	0	2	20	1	-	-	-	60	-	-	29		15:32	15:38	220@16	30,40,45,70,90,120,240,350
006	VAD	30	LIN	0	2	20	1	350	30	2	60	-	-	.		15:42	15:46	240@8	Azimuth 270
007	VAD	30	LIN	0	2	20	1	150	100	2	6	-	-	.		15:49	15:52	230@8	Azimuth scanning Range scanning
008	VAD	30	LIN	0	.2	20	1	400	150	2	6	-	-			16:04	16:09		Azimuth scanning Range scanning

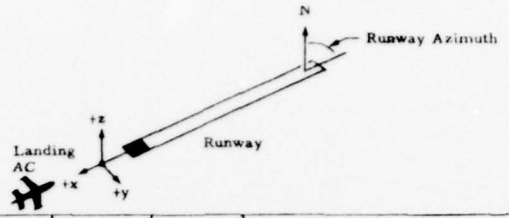
Location: KLA
Date: 1 30 76
Sheet 1 of 3

Van X Position: 250 ft
Ref. Pt. Middle Middle

Van Y Position: 402 ft
Ref. Pt. Center of nw

Runway Azimuth: 310

Mirror Azimuth for Switch: 115

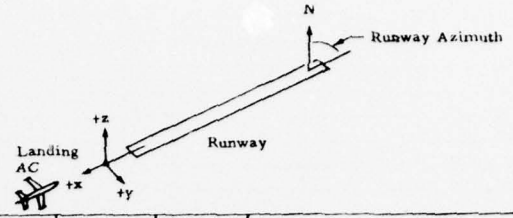


Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
001	VAD	30	LIN	0	2	2	1	-	-	-	60	-	-	30		14 49	14 55	300@10	30,40,45,70,90,130,240,330
002	VC-10	100	LIN	8	8	28	1	160	40	30	40	05	2	"		14 57	14 58	240@10	Clear
003	707	100	LIN	8	8	28	1	180	40	30	40	05	2	"		15 01	15 03	300@10	
004	DC-8	100	LIN	8	8	28	1	180	40	30	35	05	2	"		15 03	15 05	300@12	
005	747	100	LIN	8	9	28	1	180	40	30	35	05	2	"		15 06	15 07	290@10	
006	747	100	LIN	8	9	28	1	200	40	30	40	05	2	"		15 11	15 12	320@12	
007	707	100	LIN	8	9	28	1	200	40	30	40	05	2	"		15 13	15 14	320@12	
008	707	100	LIN	8	9	28	1	200	40	30	40	05	2	"		15 15	15 16	300@12	
009	DC-8	100	LIN	8	9	28	1	200	40	30	40	05	2	"		15 16	15 17	300@12	
010	L-1011	100	LIN	8	9	28	1	200	40	31	40	05	2	"		15 19	15 20	300@12	
011	747	100	LIN	8	9	28	1	200	40	31	40	05	2	"		15 21	15 22	320@10	
012	L-1011	100	LIN	8	9	28	1	200	40	31	40	05	2	"		15 27	15 29	310@10	
013	DC-8	100	LIN	8	8	28	1	200	40	31	40	05	2	"		15 40	15 41	310@10	
014	707	100	LIN	8	8	28	1	200	40	31	40	05	2	"		15 41	15 42	310@10	
015	747	100	LIN	8	8	28	1	200	40	31	40	05	2	"		15 43	15 43	300@10	
016	747	100	LIN	8	8	28	1	200	40	31	40	05	2	"		15 44	15 46	310@10	
017	DC-9	100	LIN	8	8	28	1	200	40	31	40	05	2	"		15 46	15 47	310@10	
018	707	100	LIN	8	8	28	1	200	40	31	40	05	2	"		15 48	15 49	240@10	
019	747	100	LIN	8	8	28	1	200	40	31	40	05	2	"		15 50	15 51	300@8	
020	DC-9	100	LIN	8	8	28	1	200	40	31	40	05	2	"		15 52	15 53	300@8	
021	727	100	LIN	8	8	28	1	200	40	31	40	05	2	"		15 54	15 55	310@10	
022	707	100	LIN	8	8	28	1	200	40	31	40	05	2	"		15 56	15 57	300@10	
023	727	100	LIN	6	6	26	1	200	40	31	40	05	2	"		16 01	16 03	310@10	
024	DC-10	100	LIN	6	7	26	1	180	40	31	40	05	2	"		16 07	16 09	330@12	
025	707	100	LIN	6	7	26	1	180	40	31	45	10	2	"		16 10	16 11	320@12	
026	DC-9	100	LIN	6	7	26	1	180	40	31	45	10	2	"		16 12	16 13	300@10	
027	747	100	LIN	6	7	26	1	180	40	31	45	10	2	"		16 14	16 15	320@12	2 SEPARATE VORTEX
028	707	100	LIN	6	7	26	1	180	40	31	45	10	2	"		16 16	16 16	300@10	

Location: KIA
Date: 1-30-76
Sheet 2 of 3

Van X Position Ref. Pt.: 250 ft Middle marker
Van Y Position Ref. Pt.: 400 ft Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch: 115



Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
029	707	100	lin	.6	.7	2.6	1	180	90	3.1	40	10	2	36		16.19	16.20	330 @ 14	
030	DC 9	100	"	"	"	"	"	"	"	"	"	5	"	36		16.21	16.22	330 @ 16	
031	DC 10	"	"	"	"	"	"	"	"	"	"	"	"	"		16.22	16.24	330 @ 16	
032	DC 10	"	"	"	"	"	"	"	"	"	"	"	"	"		16.25	16.26	320 @ 10	
033	707	"	"	"	.8	"	"	"	"	"	"	"	"	"		16.27	16.28	330 @ 10	
034	707	"	"	"	"	"	"	"	"	"	"	"	"	"		16.29	16.30	330 @ 6	
035	DC 9	"	"	"	"	"	"	"	"	"	"	"	"	"		16.31	16.32	300 @ 10	
036	DC 10	"	"	"	"	"	"	"	"	"	"	"	"	"		16.33	16.34	320 @ 10	
037	747	"	"	"	"	"	"	"	"	"	"	"	"	"		16.37	16.38	310 @ 10	
038	707	"	"	"	"	"	"	"	"	"	"	"	"	"		16.39	16.40	310 @ 10	
039	DC 8	"	"	"	"	"	"	"	"	"	"	4	"	"		16.42	16.43	310 @ 10	
040	DC 8	"	"	"	"	"	"	"	"	"	"	"	"	"		16.44	16.45	310 @ 10	
041	707	"	"	"	"	"	"	"	"	"	"	"	"	"		16.45	16.47	310 @ 10	
042	727	"	"	"	"	"	"	"	"	"	"	"	"	"		16.48	16.49	310 @ 10	
043	747	"	"	"	"	"	"	"	"	"	"	"	"	"		16.52	16.53	330 @ 10	
044	747	"	"	"	"	"	"	"	"	"	"	"	"	"		17.00	17.01	330 @ 12	
045	L1011	"	"	"	"	"	"	"	"	"	"	"	"	"		17.03	17.04	330 @ 12	
046	DC 8	"	"	"	"	"	"	"	"	"	"	"	"	"		17.05	17.06	330 @ 12	
047	DC 8	"	"	"	"	"	"	"	"	"	"	"	"	"		17.07	17.08	340 @ 12	
048	+ prop.	"	"	"	"	"	"	"	"	"	"	"	"	"		17.11	17.12	340 @ 12	
049	DC 8	"	"	"	"	"	"	"	"	"	"	"	"	"		17.18	17.20	320 @ 12	
050	707	"	"	"	"	"	"	"	"	"	"	"	"	"		17.23	17.24	310 @ 12	
051	747	"	"	"	"	"	"	"	"	"	"	"	"	"		17.26	17.27	320 @ 8	
052	747	"	"	"	"	"	"	"	"	"	"	"	"	"		17.28	17.29	320 @ 10	
053	727	"	"	"	"	"	"	"	"	"	"	"	"	"		17.29	17.30	320 @ 8	
054	727	"	"	"	"	"	"	"	"	"	"	"	"	"		17.31	17.32	320 @ 8	
055	727	"	"	"	"	"	"	"	"	"	"	"	"	"		17.32	17.33	300 @ 8	
056	707	"	"	"	"	"	"	"	"	"	"	"	"	"		17.37	17.38	310 @ 8	

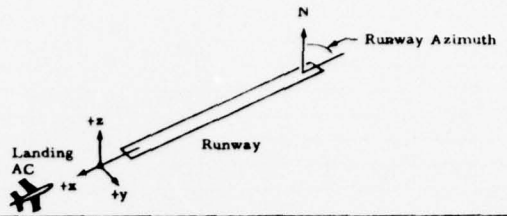
Location: KIA
Date: 1-30-76
Sheet 3 of 3

Van X Position: 250 FT
Ref. Pt. Middle Marker

Van Y Position: 400 FT
Ref. Pt. Center of RW

Runway Azimuth: 310

Mirror Azimuth for Switch: 115

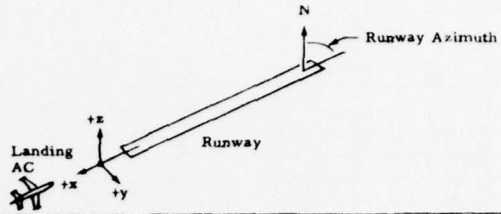


Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log / Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
057	DC-9	100	LIN	6	7	26	1	180	40	91	40	12	2	32		1741	1743	312@8	
058	VAD	30	LIN	0	3	2	1	-	-	-	40	-	-	"		1828	1835	320@8	30,40,45,70,90,120,240,350

Location: KIA
Date: 1-31-76
Sheet 1 of 1

Van X Position: 250 ft
Ref. Pt. MARKER
Van Y Position: 401 ft
Ref. Pt. Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch: 115

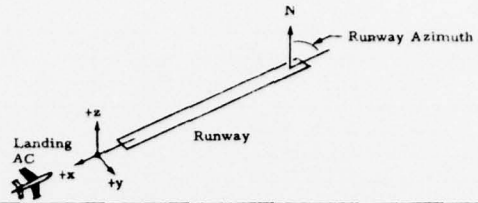


Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
001	VAD	30	LIN	5	7	~~9~~ 11	"	—	—	-	60	—	-	3		14 29	14 34	220@5	30,40,45,70,90,120,240,330
002	747	100	LIN	4	8	24	"	130	40	31	40	05	2	"		15 43	15 40	200@10	
003	707	"	"	6	7	26	"	"	"	"	"	"	2			15 46	15 47	200@10	
004	747	"	"	6	7	26	"	"	"	"	"	"	"			15 47	15 48	200@10	
005	707	"	"	6	8	26	"	"	"	"	50	10	"			15 49	15 50	190@10	
006	707	"	"	"	"	"	"	"	"	"	"	"	"			15 51	15 52	200@8	
007	DC-9	"	"	"	"	"	"	160	35	"	"	"	"			15 53	15 54	190@6	
008	727	"	"	"	"	"	"	"	"	"	"	"	"	"		15 55	15 56	200@6	
009	727	"	"	"	"	"	"	"	"	"	"	"	"	"		15 57	15 58	210@6	
010	747	"	"	"	"	"	"	"	"	"	"	"	"	"		15 59	16 00	200@6	
011	VAD	30	LIN	0	2	2	"	—	—	—	60	—	—	"		16 15	16 25	200@8	30,40,45,70,90,120,240,330
012	VAD	30	LIN	0	2	2	"	—	—	—	60	—	—	"		16 45	16 55	220@8	30,40,45,70,90,120,240,330

Location: KIA
Date: 2-1-76
Sheet 1 of 1

Van X Position Ref. Pt.: 250 ft Range Marker
Van Y Position Ref. Pt.: 400 ft Center of RW

Runway Azimuth: 310
Mirror Azimuth for Switch: 115



Run ID		Spectrum Analyzer						Scanner						Computer		Time		Estimated Wind Azimuth (from)	Comments
				Freq. Span (MHz)				Range			Elevation								
No.	AC Type or VAD	B.W. (kHz)	Log/Lin	Min.	f_c	Max.	Rate (msec)	Max.	Min.	Rate	Max.	Min.	Rate	Tape No.	No. Records	Start	Stop		
001	VAD	30	LIN	300	300	23	1	-	-	-	60	-	-	31		1131	~~1136~~ 1143	190@15	3,45,70,95,120,245,335 2nd Azim Legal Run
002	VAD	30	LIN	300	300	23	1	-	-	-	60	-	-	"		1219	1230	180@12	"
003	VAD	30	LIN	300	300	23	1	-	-	-	60	-	-	"		1245	~~1249~~ 1249	180@15	AZIMUTA Del NOT Run Clear
004	VAD	30	LIN	300	300	23	1	-	-	-	60	-	-	"		1248	1300	180@15	3,40,45,70,90,120,240,358
005	VAD	30	LIN	300	300	23	1	-	-	-	60	-	-	"		1315	1320	180@18	3,24,183 - AM. 70 M (Cloud started [illegible]
006	VAD	30	LIN	300	300	23	1	-	-	-	60	-	-	"		1320	1328	180@18	3,4,45,2,90,120,240,358 Clear (Loss th[illegible] 90
007	VAD	30	LIN	"	"	"	"	-	-	-	60	-	-	"		1345	1400	180@18	
008	VAD	30	LIN	300	300	23	1	-	-	-	60	-	-	"		1444	"	"	Light Thunderhead 360°

Appendix D
REPORT OF INVENTIONS

Under this contract the Lockheed LDV system was modified, calibrated and tested in an airport environment. A base of wind and wake vortex measurements were obtained. The contract objectives were met and no innovation, discovery nor invention was made.

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